MINISTRY OF NATURAL RESOURCES

Cornwall District

LAND USE GUIDELINES

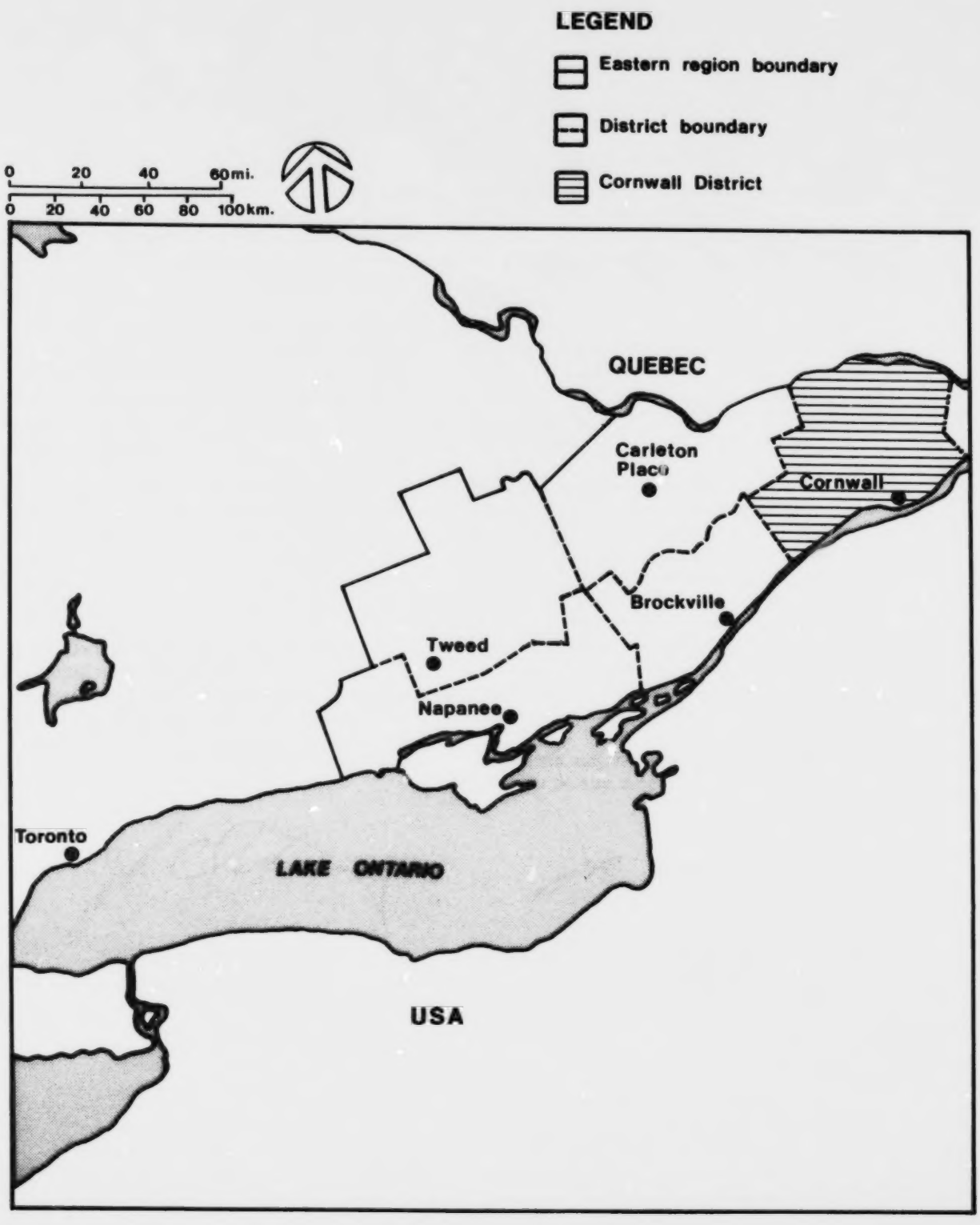
Ministry of Natural Resources
Ontario

Hon. Alan W. Pope
Minister

W. T. Foster
Deputy Minister

1983

REGIONAL SETTING



FOREWORD

The Ministry of Natural Resources has a primary responsibility for the management of the province's natural resources, in particular those related to resource development and outdoor recreation.

This document will serve as a design for integrated resource development in the Cornwall District. It is also intended to provide others with an understanding of the ministry's mandate and its programs which rely on both Crown and private lands for success.

To ensure an integrated approach the *Cornwall District Land Use Guidelines* identify where and in what manner the ministry may use Crown land, and to what extent it may wish to suggest uses of private land, in working towards the achievement of ministry objectives.

For Crown land the ministry must consider the land and water requirements of both its own programs and those of other government agencies. This will require ongoing liaison with these other agencies. The ministry will continue to consult with private landowners and local municipalities since the latter have responsibility for control of private land use.

The program targets and approaches outlined in this document follow the overall direction outlined in the ministry's *Southern Ontario Coordinated Program Strategy*. This document may serve as one of the sources of information for ministry involvement in the planning process of municipalities and other agencies. It is recognized, however, that this document has no legal status.

Planning is a continuous process and must be responsive to changing needs, information and technology. Thus the targets and strategies presented in this document are subject to revision based on such factors as changes in government policy, new or refined resource information, and significant changes to land use in other planning documents. To accommodate changes the *Land Use Guidelines* will normally be reviewed every ten years and will involve full public consultation.

Comments may be addressed to the District Manager at any time.

Regional Director
Eastern Region

District Manager
Cornwall District

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I INTRODUCTION

It is the primary responsibility of the Ministry of Natural Resources to manage the public lands and waters which make up 45 percent of southern Ontario. The ministry also participates with other government agencies, private interests and municipalities in the planning and use of private lands and waters.

The goal of the ministry is to provide opportunities for resource development and outdoor recreation for the continuous economic and social benefit of the people of Ontario and to manage, protect and conserve public lands and waters.

Effort is directed towards this goal through three broad programs. The resource production program stimulates and regulates the utilization of fish, fur-bearers, minerals and trees by resource industries. The outdoor recreation program provides and encourages a wide variety of recreational opportunities, the identification and conservation of certain unique or representative features of the province and a continuous economic contribution from the tourism industries. The land and water management program serves to facilitate orderly development, to administer, protect and conserve public lands and waters and to further the safe, coordinated use of all lands.

The Ministry of Natural Resources seeks to meet its goal and objectives through a coordinated, decentralized corporate planning and management system. One of the components, the land use planning system, provides the many diverse land and water related programs of the ministry with the framework for long-term integrated resource management by defining Crown land and water resources to achieve overall government objectives and by identifying private land contributions to achieve ministry objectives. This framework is expressed at two levels; in the strategic land use documents prepared for northwestern, northeastern, and southern Ontario planning regions and in subsequent district land use guidelines.

The *Southern Ontario Co-ordinated Program Strategy* interprets the key elements of approved ministry policy statements in a co-ordinated fashion for the southern Ontario planning region. Each district is required to produce land use guidelines for the local administrative level.

In southern Ontario, the ministry is decentralized both geographically and administratively to four regions (Southwestern, Central, Eastern and Algonquin) and twenty-one districts, and functionally by management programs, mineral resources, forestry, fisheries, wildlife, provincial parks, lands and various specialized services.

The Cornwall District is one of five administrative units in the Eastern Region responsible for the attainment of ministry program targets (frontispiece). This district covers an area of 521,210 hectares (2,012 square miles). There are forty-one municipalities within the district including the United Counties of Prescott-Russell and Stormont-Dundas-Glengarry. It is bounded to the north by the Ottawa River, to the east by the Province of Quebec, to the south by the St. Lawrence River and to the west by the Brockville and Carleton Place Districts. The major urban centres in the district are Cornwall and Hawkesbury.

The ministry directly manages the Crown lands and waters and agreement forest lands which together comprise about 8 percent of the Cornwall District. In addition, the district works closely with the St. Lawrence Parks Commission, two conservation authorities (Raisin Region, South Nation River) and other public and private organizations to ensure that their programs contribute to the achievement of ministry objectives wherever possible. Nevertheless, the essential fact is that the district targets must be achieved largely on private land in organized municipalities. Major effort will be directed to encouraging a continuous contribution from private land to the achievement of ministry objectives. This will involve the provision of direct

forms of encouragement to landowners and continued liaison and co-operation with municipalities which have responsibilities for controlling land use on private land under the authority of the *Planning Act*.

This document, the *Cornwall District Land Use Guidelines*, has been prepared in accordance with Ministry of Natural Resources provincial and regional guidelines for land use planning and in conformity with the direction provided by the *Southern Ontario Co-ordinated Program Strategy*.

The *Land Use Guidelines* states ministry policy for the administrative district including objectives, targets and strategies and provides assistance for co-ordinating and integrating the land and water related programs of the ministry. It indicates what the ministry plans to achieve, and how much, when, where and how it wishes to accomplish this within the Cornwall District. This document is best viewed as a working guideline which will be subject to considerable review and re-evaluation as the ministry proceeds with application.

Prediction of the future is uncertain at best and impractical for some resource uses. However, the use of targets provides a measurable indication of the degree of achievement of certain ministry program policies. It is not intended that all targets be achieved immediately but rather over the next 20 to 40 years. Periodic reviews will maintain the long-term perspective. Nevertheless, the achievement of the stated targets may be affected by a number of factors including the validity of the original assumptions, legislative approval of necessary funding and staffing levels, changing economic and social conditions, new or improved inventory and information which could result in a change to the original estimates and improved analysis techniques.

Program targets were initially allocated among the five districts in the Eastern Region from regional targets assigned in the *Southern Ontario Co-ordinated Program Strategy*. Each district then made an evaluation of whether or not the assigned targets were achievable. This involved examining factors such as current resource production, major constraints and the land area potentially available to each program. Some targets have been adjusted to reflect this review.

This document is designed primarily for use by ministry staff when managing the natural resources of the district and when providing information and comments for the plans of municipalities, conservation authorities, other agencies and private landowners. Care must be taken that no one policy area is interpreted without regard for the others when applying the *Land Use Guidelines*.

In developing land use guidelines for Cornwall District, a number of background papers were prepared. In addition, a tabloid was widely distributed in November 1980, to provide an introduction to the land use planning activities of the ministry. It presented brief highlights of the ministry's present natural resource programs in the Eastern Region and invited individuals and groups to become involved in the land use planning process for natural resource use now and in the future. In February 1981, the district held three public open houses in Cornwall, Winchester and Hawkesbury. These gatherings provided a forum for discussions of issues in resource planning.

These actions contributed to the preparation of a draft *Cornwall District Land Use Strategy* in June 1982. This document was circulated during the summer months and provided a focus for four public open houses in Cornwall, Winchester, Bourget and at Carillon Provincial Park. The document was revised based upon verbal and written comments received at the open houses, meetings with interested groups including municipalities and conservation authorities and the contents of written briefs and letters. Copies of all comments received are available for viewing in the Cornwall District office, in the ministry's main office public reading room and in the Legislative Library at Queen's Park, Toronto.

This introductory section outlines briefly the scope of the Ministry of Natural Resources mandate, provides the context for planning within the ministry, and describes the Cornwall District and how land use planning has been applied to the area. The General Policies and Specific Policies sections of the report state the objectives and targets applying to the Cornwall District and discuss the management challenges and opportunities that exist. These sections also describe broad strategies for achieving the objectives and targets. The next section, General Resource Areas, describes present use and de-

velopment, any special features and current land use problems and issues for specific locations in the district, and indicates which ministry programs will operate, and the relevant strategies and important relationships that apply. The Application section describes, in general terms, how district staff will carry out the developed land use guidelines. An Appendix highlights the public consultation program followed during the district land use planning process. A Glossary also is provided.

The policies outlined in this section will be practised or supported by each program of the ministry in the district. These policies do not necessarily apply to any one program more than another and are not specific to any one land area.

A: integrated resource management

1. POLICY STATEMENT

Programs will be integrated to ensure the efficient use of land and water to achieve ministry objectives.

2. DISCUSSION

Given the relatively small amount of land under the direct management of the ministry, less than 5 percent of the district, a significant portion of ministry program objectives must be achieved through encouraging the use of private land. Water covers another 4 percent of the total area of the district. Map 1 shows the extent and distribution of land ownership in the Cornwall District.

Public land and water management involves the stewardship of the basic resources of land and water. In the case of some 87 percent of the province, the land belongs to the Crown and is managed for the benefit of the people of Ontario. For the rest of the province which is in private ownership, the public's interest is more limited; it exists nevertheless and must be recognized. The integrated resource management policy within the Cornwall District will have particular emphasis on public lands for all ministry programs. Where individual programs require the use of private land or may affect adjacent land, ministry resource management will co-ordinate activities with other land uses such as agriculture and residential development so that conflicts and inefficiencies are avoided or minimized. It is anticipated that considerable cross-program efficiencies may be achieved through greater integration of activities on lands now managed by the ministry. At present, most of the smaller, isolated parcels are managed for forestry purposes.

Many agencies at the federal, provincial, regional and local levels of government have an interest in the planning and management of land and water resources. Therefore, co-ordination is required among agencies as well as within the Ministry of Natural Resources. This is particularly evident in water management which can be described generally under the categories of water quality management, water quantity management and water related land management.

Water quality management in Ontario falls principally under the jurisdiction of the Ministry of the Environment through its administrative responsibility for the *Ontario Water Resources Act* and the *Environmental Protection Act*. The Ministry of Natural Resources has a

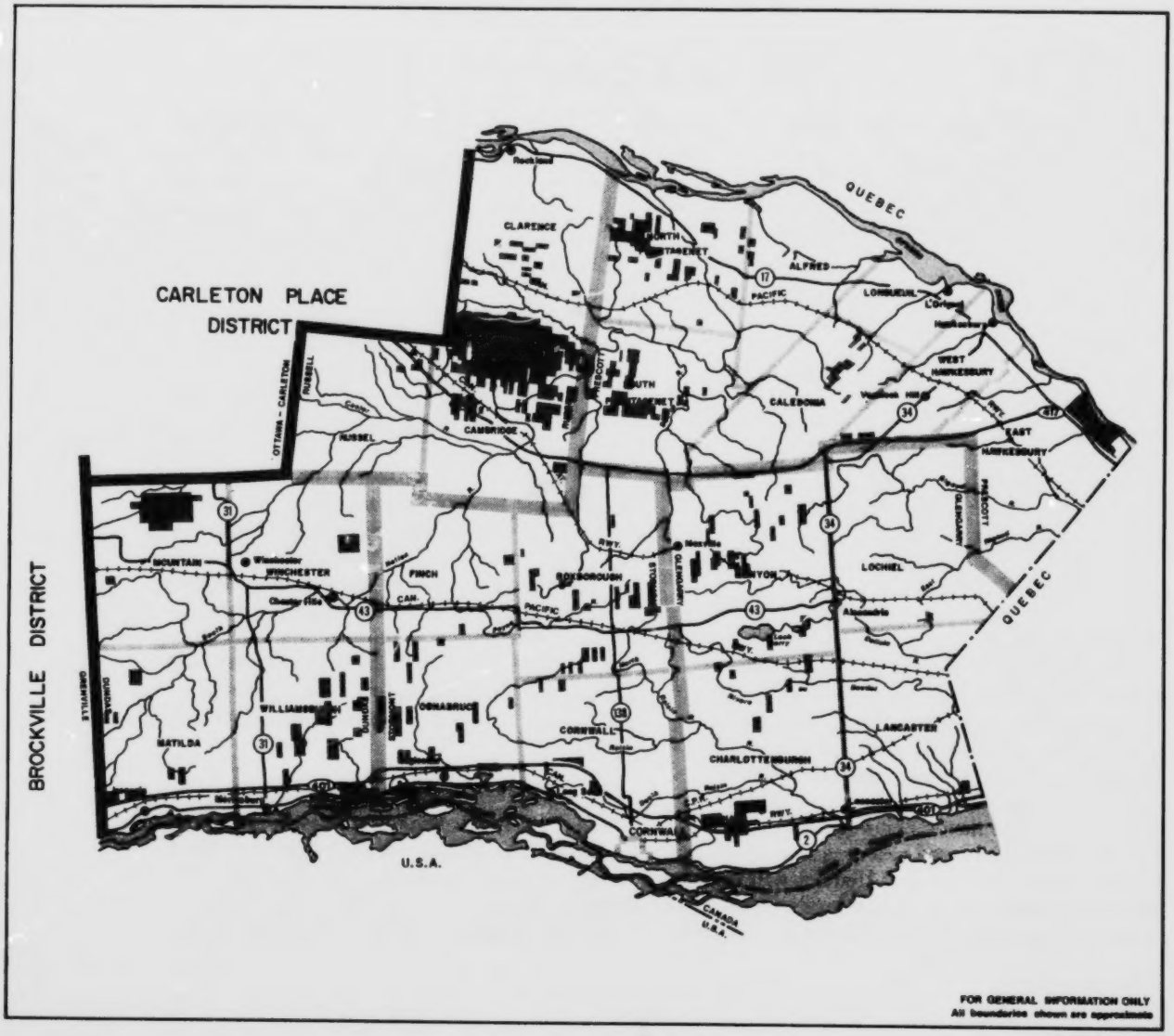
CORNWALL DISTRICT

LEGEND

Private land

Public land

LAND OWNERSHIP



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MAP 1

primary concern for water quality as it pertains to fish habitat management and water-oriented recreation.

The Ministry of Natural Resources is involved in water quantity management in several ways. The ministry has been assigned responsibility for provincial response to flood emergencies. The ministry also regulates the construction and operation of dams and other works under the *Lakes and Rivers Improvement Act*. In addition, several sections of the *Fisheries Act* (Canada) and boating regulations under the *Canada Shipping Act* (Canada), both administered by the Ministry of Natural Resources, apply to water quantity management.

Water conservation and flood control in Ontario have been delegated and decentralized to the watershed level where conservation authorities have been established, therefore, conservation authorities play an active role in water quantity management in much of southern Ontario. In areas not under conservation authority jurisdiction, such as the Ottawa River shoreline and a portion of the St. Lawrence River in Dundas County, the Ministry of Natural Resources must assume this responsibility. The *Cornwall District Land Use Guidelines* will therefore contain references to water management and the activities of existing conservation authorities in order to foster an integrated and consistent approach for resources management across the entire district.

The Ministry of Natural Resources plays an important role in regulating floodplain development and managing water related land resources such as wildlife, parks and forests. Conservation authorities, under the *Conservation Authorities Act*, are given specific powers for water related land management. They have the right to acquire and manage lands to meet their objectives including recreational purposes. As an integral part of conservation authorities' flood and erosion control programs, effective land management is used and encouraged to reduce or eliminate negative impacts of land use decisions on water management.

It is anticipated that conservation authorities through their watershed or basin studies and plan review function will continue to take an active role in storm water management, municipal drainage, soil conservation and review of proposed land use which may change the quality and the quantity of water resources.

The ministry acknowledges that the planning authority in organized municipalities rests primarily with the local council. The *Land Use Guidelines*, however, outline many of the ministry's preferences for land use and resource management on private land and provide a framework for decision making within the ministry.

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3. STRATEGY

- apply the concept of multiple use to land and water resource management, that is,
  - normally undertake two or more compatible activities on the same major area, concurrently or sequentially over time, and
  - recognize that in some circumstances, management of areas for a single purpose such as extraction, protection or recreation is necessary;
- ensure that individual area management plans including water management plans, consider as many ministry objectives as possible to foster integrated management and increased efficiency;
- provide through a district management committee, a continuing forum to promote integrated resource management and the implementation of the *Land Use Guidelines;*
- require members of the district management committee to review resource management plans and other resource management proposals to ensure that all program interests and opportunities for cross-program efficiencies are maximized whenever possible;
- review all existing resource management plans and, if necessary, update to ensure conformity within five years unless otherwise exempted by the district management committee;
- prepare a general resource management plan for all *public land* in the Cornwall District for which the Ministry of Natural Resources has a major management commitment;
- prepare a resource management statement where the ministry contributes to the management of *other public lands or private lands*;
- promote integrated resource management and conservation practices on *private land* through various extension services, demonstration projects and other public relations initiatives;
- prepare a district information strategy to integrate public relations/education efforts of all ministry programs through a coordinated planning process;

- undertake a comprehensive analysis of all municipal official plans within the Cornwall District to assess the status of resource related policies and to facilitate improvements as necessary;
- initiate a waterfront strategy for the St. Lawrence River shoreline in recognition of the significant contribution of the St. Lawrence River system to various ministry programs. The project will consider the concerns of all agencies, municipalities and the general public having an interest in the waterfront. Items to be addressed include water and resource access, wetland preservation, oil spills, winter navigation, unauthorized occupations, and fishing and hunting regulations; and
- permit interim use of candidate parks providing park values are protected. Uses and facilities which complement the achievement of park objectives will be encouraged; uses which have no significant negative impact on the long-term achievement of park objectives will be permitted with judicious controls; and uses which would conflict with the long-term achievement of park objectives will be prohibited.

B: public safety

1. POLICY STATEMENTS

The ministry will seek to eliminate loss of life and to minimize property damage and community disruption resulting from floods, erosion, earth slippage and forest fires.

The ministry will seek to eliminate injury and loss of life from hazards around abandoned pits, quarries and mine shafts and from abandoned oil and gas wells.

The ministry will promote the safe pursuit of outdoor recreation and resource production activities.

2. DISCUSSION

The Cornwall District is generally flat-lying and extensive inland areas are prone to flooding on an annual basis. The Ottawa River shoreline is frequently subject to high water conditions despite the operation of several hydro-electric control dams. The flooding problem is aggravated by the presence of marine clay. This material is unstable, particularly when saturated with water or in exposed slopes, and may present a serious hazard if developed. The ministry's plan review program is essential to the achievement of the public safety objective along the Ottawa River due to the absence of a conservation authority. It is expected that conservation authorities will assume the lead role in establishing flood warning systems and in encouraging municipalities within their jurisdiction to adequately map flood susceptible areas for inclusion in official plan documents.

In the Cornwall District the regulatory flood for designation of flood plains is defined as the 100-year flood. Conservation authorities in the district have adopted or are in the process of adopting where possible, detailed programs, policies and operational criteria to apply more precisely the provincial standards to local conditions. For erosion susceptible sites 100 years of protection is the provincial standard.

Forest fire management is an integral part of land and resource management. Forest fire management is the strategy of fire control and fire use practised in concert with land use objectives and conducted in a manner that considers environmental, social and economic criteria.

The fire management program of the ministry performs a support function that provides expert knowledge and specialized services in matters of fire control and fire use to groups within and outside the ministry. Those services relate to preventing the occurrence of wildfires, control-

ling those wildfires that threaten values and using prescribed fire as an approved resource management technique.

The Ministry of Natural Resources has responsibility for forest fire management in Ontario. This responsibility is shared with municipalities and with landowners and resource users.

Delivery of fire protection services is best carried out by municipal agencies where they have that capability. The ministry can play a significant role in developing municipal expertise in minimizing risks from forest fires and in fire and emergency planning.

The ministry ensures adequate fire control on the land it directly manages and is the lead agency for provincial forest fire emergencies. Prescribed burning is a planned, controlled procedure which may be used in certain circumstances to assist forestry or wildlife management activities.

3. STRATEGY

- review municipal official plans and zoning by-laws in areas prone to flood, erosion and earth slippage and initiate amendments necessary to achieve adequate public safety;
- continue to provide input to municipal planning and to review development proposals to discourage unsafe development of hazard lands;
- regard as a priority, floodplain mapping and identification of hazards within the district not presently under the jurisdiction of a conservation authority;
- update annually, the *Cornwall District Flood Contingency Plan*;
- prepare and implement fire management plans for areas directly managed based upon consideration of human life, private and public property, wood production and wildlife habitat;
- ensure that development and resource extraction activities in forested areas are designed to reduce the possibility of fire spread;
- inspect abandoned pits, quarries and mine shafts and work with the Ministry of Labour to ensure that adequate safety measures are provided; and
- promote the hunter safety program by offering training for instructors and by providing competent examiners and facilities for examinations.

C: environment

1. POLICY STATEMENT

The ministry will conduct its activities in an environmentally responsible manner.

2. DISCUSSION

Cornwall District borders the Province of Quebec and New York State. The effectiveness of ministry activities in the achievement of the environment policy statement is influenced by actions and policies in adjoining jurisdictions and other government agencies. No one agency can effect this purpose alone.

Achievement of ministry targets is contingent upon a great many factors, not the least of which is the maintenance of a suitable environment. Of particular concern is the potential effect of acid precipitation on water bodies, soil and vegetation. The ministry will work closely with other government agencies to monitor the effect of contaminants such as acid rain on the achievement of its objectives.

All programs of the ministry share in the responsible management of natural resources. This includes identifying and conserving unique, representative or endangered physical,

biological, cultural and historical features of the province. Biologically sound management is a basic requirement of forest, wildlife and fisheries management. The management of non-renewable resources includes both protecting them from incompatible land use activities and discouraging use of high quality materials where lower quality materials would be suitable. Where environmental impacts are inevitable, mitigating and rehabilitation measures are used.

Many land-using activities within the district are not always compatible with the program interests of the Ministry of Natural Resources. The *Land Use Guidelines* will serve as one of the bases for resolving potential conflicts and inefficiencies.

Some resource management activities carried out by the ministry are subject to the *Environmental Assessment Act*.

3. STRATEGY

- maintain liaison with other provincial agencies and adjacent jurisdictions (New York State, Province of Quebec) on resource management and environmental issues;
- in conjunction with conservation authorities, manage and regulate watersheds including groundwater recharge and source areas, lands adjacent to watercourses and waterfront areas;
- identify significant program areas and protect them through the resource management activities of individual programs or through co-operation with other agencies;
- encourage the conservation of all natural resources through plan review and advisory functions;
- encourage consideration of all wetland values in municipal planning and the planning of other agencies. The ministry will be issuing a wetlands policy in the near future;
- identify and seek to protect the habitat of provincially rare and endangered animals and plants;
- participate in monitoring the effects of contaminants including acid rain on natural resources; and
- implement procedures to meet the requirements of the *Environmental Assessment Act*.

D: energy

1. POLICY STATEMENT

The ministry will undertake its activities so as to contribute to provincial energy objectives.

2. DISCUSSION

The province is committed to a major effort to increase its capacity for energy self-sufficiency. The Ministry of Natural Resources is currently assisting in achieving provincial energy objectives by increasing energy efficiency and conservation, participating in resource inventory programs and participating in energy recovery programs.

Cornwall District has large hydro-electric installations on both the Ottawa and St. Lawrence Rivers. Inland rivers, due to the relatively flat topography, offer little potential for hydro-electric generation.

An expansion of the hybrid poplar program in the district could contribute to the overall energy target by providing biomass for wood alcohol production and by reducing haulage costs to local paper mills.

3. STRATEGY

- promote energy conservation through program strategies and demonstration projects such as the solar hot water heater at Carillon Provincial Park; and
- contribute to reduced motor fuel consumption by the provision of recreation opportunities through provincial parks and fish and wildlife programs in close proximity to centres of population.

Other strategies are noted in the Forestry program policy.

A: forestry

1. OBJECTIVE

The objective for forestry in southern Ontario is to provide for an optimum contribution to the economy by forest-based industries consistent with sound environmental practices and to provide for other uses of the forest.

2. TARGETS

The targets for forestry in Cornwall District are:[1]

- to produce an annual continuous supply of 230,000 cubic metres (8.0 million cubic feet) of wood for industrial purposes by the year 2020 while maintaining the present diversity of forest products; and
- to make the maximum contribution from forest production to the achievement of the provincial energy target.

3. DISCUSSION

The first sawmill in Ontario was built in Matilda Township in 1788. Since this early beginning forestry has contributed to the local economy.

In the Cornwall District hardwoods predominate occupying 70 percent of the productive forest land; mixed wood species make up 18 percent and conifers only 12 percent. The usable wood volume in the forests of the district is about 8.8 million cubic metres (311 million cubic feet) which amounts to only 70 cubic metres per forested hectare (1,000 cubic feet per acre). This is substantially lower than the indicated production capability for these sites. Map 2 shows the nature and extent of present or potentially available forest resources in the Cornwall District.

In addition to the low quantity of wood, the quality also is low due to stand densities and past cutting practices. A majority of private woodlots are currently immature due to very heavy cuts in the 1950s. These lands may be producing far less than their potential in volume and quality of timber. Also, much of the private forested land is not being managed using sound forest management practices. Unless present cutting and management practices are improved on these and other areas, there may result a timber shortage during the latter part of this century. The planning process must consider alternate supply, technological improvement and product change in its assessment of timber supply.

Eighty-one percent of the existing and potentially available productive forest land in the district is privately owned and 97 percent of the annual harvest for forest products is taken from private land. Clearly, private land is essential to the forestry program in the Cornwall District.

All the timber producing lands in the district, public and private, are required to meet the 2020 wood production target. The current annual harvest by the forest industry from 132,000 hectares (330,000 acres) of forested land is about 101,000 cubic metres (3,570,000 cubic feet). In addition to this an estimated 53,500 cubic metres (21,000 cords) is utilized as fuelwood.

Within the Cornwall District 25,698 hectares (64,220 acres) are directly under ministry management, most of which is through forest agreements with the two conservation authorities, the two united counties, Charlottenburg and Williamsburg Townships and Domtar Incorpo-

(1) All volumes of wood are expressed in net merchantable terms.

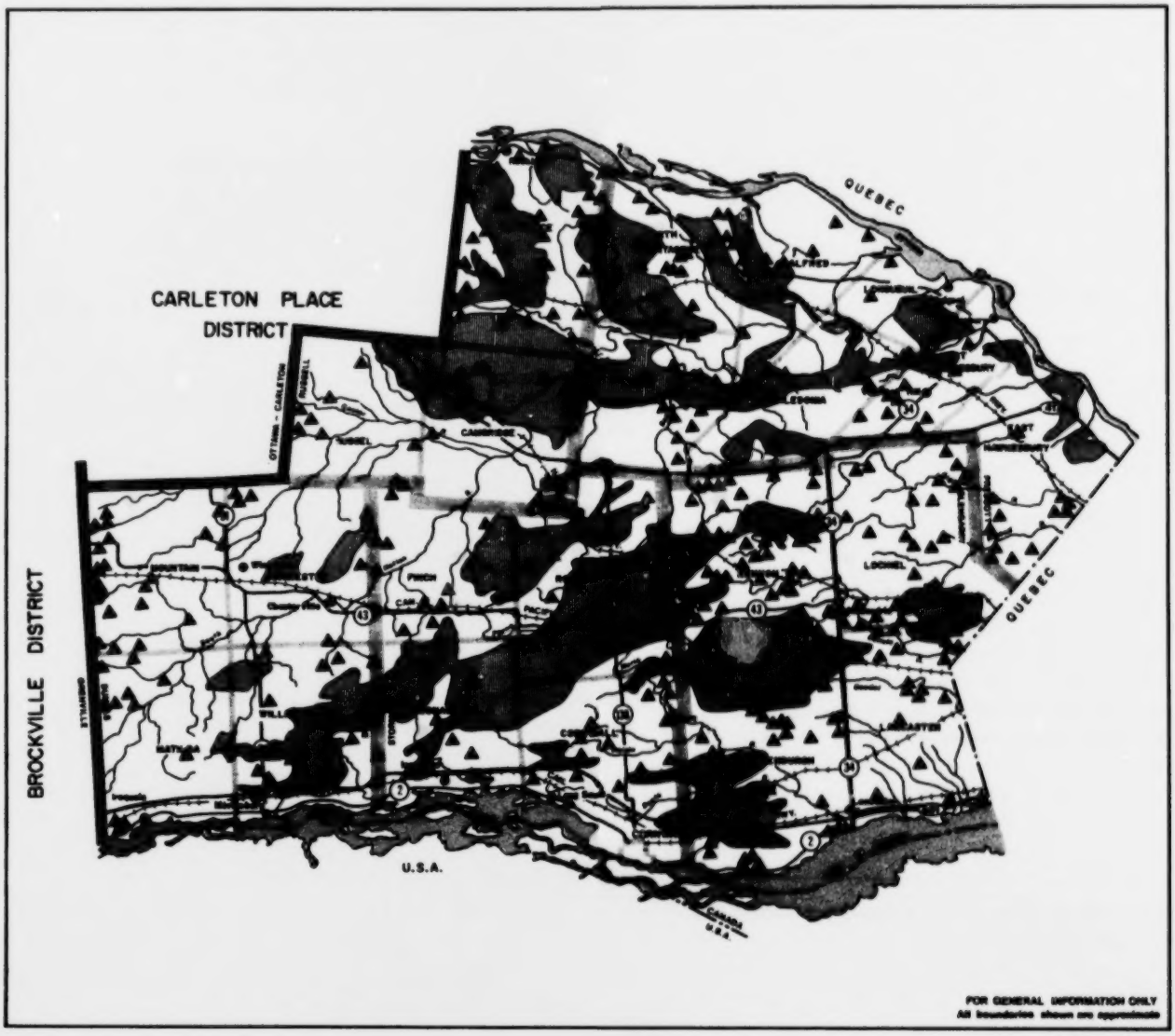
CORNWALL DISTRICT

LEGEND

Forest resource area

Woodlands Improvement Act agreement area

FORESTRY



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MAP 2

rated. Also, numerous private property owners are involved in the *Woodlands Improvement Act*.

At present within the district, 10 percent of the industrial wood requirement is for sawlogs and 90 percent for pulpwood.

District pulp mills import 46 percent of their wood from Quebec and 17 percent from the United States. Of the sawlog requirement, 31 percent is met from Quebec and 16 percent from the United States. Increasing supplies of wood in close proximity to the mills over the planning period would reduce reliance on imported wood and also offset increasing haulage and other costs resulting from rising energy prices.

The district recognizes an increasing demand for fuelwood as an alternate source of energy and will continue to encourage its use.

New information about the forest resources of the district is currently being collected and will be incorporated in the *Land Use Guidelines* as soon as it is available. Knowledge resulting from the Forest Agriculture Resource Inventory in Eastern Ontario (FARINEO) and the Forest Resources Inventory (FRI) may lead to a revision of the forestry targets. A shift in program emphasis to redefine areas of highest capability may be required.

Agriculture is the major land use activity in most of the district. Forestry and other ministry land-using programs recognize the land requirements for agriculture and will attempt to complement this use whenever possible. The Forest Agriculture Resource Inventory in Eastern Ontario (FARINEO) findings are noted in figure 1.

FIGURE 1 LAND USE BY COUNTY — CORNWALL DISTRICT

County	Agriculture	Forest	Idle	Other
	percent	percent	percent	percent
Dundas	67	18	10	5
Glengarry	62	32	4	2
Prescott	66	22	5	7
Russell	59	30	6	5
Stormont	51	30	13	6

Derived from Forest Agriculture Resource Inventory in Eastern Ontario, 1981.

Lands directly under ministry control are largely under forest management. In keeping with the need to provide for the land requirements of all ministry programs, integrated resource management on forest land will be a major thrust.

The introduction of new technology, hybrid poplar management and comprehensive forest management programs for private forests and woodlots may significantly affect Cornwall District forest production priorities. Improved efficiency of wood harvesting techniques and manufacturing processes also could have the effect of altering wood consumption patterns and species demand.

In addition to the production of wood for industrial purposes there is the substantial value of the forests for other uses. These include erosion reduction and the provision of wildlife habitat and outdoor recreation opportunities. Application of this general policy for integrated resource management will ensure that all uses, though not explicitly stated in the Forestry section, will be considered to the extent possible, in the achievement of the program objectives.

4. STRATEGY

- re-evaluate the district target and implementing strategies based on new information from the Forest Resources Inventory (FRI) and the Forest Agriculture Resource Inventory in Eastern Ontario (FARINEO);
- work towards a doubling of the forest productivity of Crown land. Present productivity is 1.5 cubic metres per hectare (21 cubic feet per acre) per year;
- solicit agreements for forest resources management on lands held by other government agencies and the private sector;
- encourage the production of forest products from private lands through advisory services, *Woodlands Improvement Act* agreements and other programs. The present

average annual planting of two million trees will be maintained and if possible expanded to increase the domestic supply for local industry;

- establish a reliable annual level of production from private woodlots by the year 2020 through the promotion of management services with farm organizations, municipal councils, the forest industry and the media;
- encourage increased harvests from private woodlots to reduce dependence on imported wood. Priority will be given first, to pulpwood and second, to sawlogs;
- promote integrated resource management of the forest resource by:
  - rehabilitating pits and quarries for forestry purposes whenever feasible,
  - establishing demonstration areas where two or more compatible uses are managed,
  - undertaking wildlife habitat improvement in conjunction with management for wood production through selective cutting, regeneration and other appropriate silvicultural techniques wherever feasible, and
  - developing cross-country ski trails, picknicking and other recreation facilities on public land and, where acceptable to the owner, on agreement lands without detriment to the production of forest products; and
- contribute to provincial energy self-sufficiency by:
  - assigning all forest lands within the district a management priority relative to their proximity to the mill,
  - locating fuelwood production areas as close as practicable to centres of population,
  - producing an annual minimum supply of 2,400 cubic metres (1,000 cords) for fuelwood on lands managed by the Ministry of Natural Resources, and
  - promoting through extension services and public information initiatives, the planting of windbreaks and other energy conservation uses of forests.

B: mineral aggregate

1. OBJECTIVE

The objective for mineral aggregate production in southern Ontario is to meet anticipated future demand with minimal disturbance to natural and cultural resources and the social environment.

2. TARGET

The target for mineral aggregate production in Cornwall District is to ensure a total cumulative supply of 49 million tonnes (54 million tons) for the period 1982-2000.

3. DISCUSSION

Aggregate production in the Cornwall District is almost entirely from private land. The district has been designated under the *Pits and Quarries Control Act* since January 1, 1981. This legislation gives to the Minister of Natural Resources the authority to license pit and/or quarry operations on private land and to require the rehabilitation of the site once the aggregate has been removed. In most areas rehabilitation can achieve predetermined end uses established through the municipal planning process. However, the ministry through its licensing of pits and quarries cannot guarantee continued use or level of production.

There are presently 250 licenced operating pits and quarries in the Cornwall District. In addition, there are over 500 abandoned pits and quarries.

Material has been taken from all of the major deposits at one time or another. Natural aggregate in the form of sand and gravel is found in ancient and deltaic deposits formed by the Champlain Sea. Due to major construction projects such as the St. Lawrence Seaway and an absence of planning controls in some areas, good quality natural aggregate is no longer plentiful. Quarried stone provides a substantial portion of the higher quality aggregate requirements for the district.

Detailed information regarding production patterns, local demand and resource management considerations will not be available until 1984. A mineral aggregate assessment study for the district depicting detailed assessment of surficial geology and calculation of probable aggregate reserves within the district is presently nearing completion.

Aggregate appears to be in relative abundance within the district, however, its extraction and the level of production are determined by market factors and municipal planning actions. Since aggregate is a non-renewable resource, demand will eventually surpass available supply in the area. As a means of providing for the future, it is often necessary to maintain the resource potential of more aggregate area than the target would suggest.

The ministry is seeking to identify and maintain the potential of sufficient aggregate to meet the target (taking the difficulties of supply into consideration) and to keep future options open. This does not require designation of the total aggregate resource area specifically for extraction. Other designations can provide for ongoing uses while retaining the option to make use of the aggregate at some time in the future. It would be prudent, however, to generally discourage designations or development on or near by aggregate reserves such that their future use would be impractical.

High potential sand and gravel areas are identified on map 3. The potential areas are defined as categories 1, 2 and 3 of the Eastern Region's sand and gravel aggregate classification system. These three categories warrant some measure of protection since together they encompass the quality of materials most in demand for road building and construction applications. Major deposits of granular fill also are identified. Potential resource areas of crushed stone (bedrock) will be added to the map when the information becomes available in 1984.

The mapped areas are in excess of anticipated future requirements and the ministry is not seeking protection of them all. Rather, it is identifying areas within which maintenance of adequate resources should be focused. Each municipality will determine the *actual* aggregate production areas and resource potential to be maintained through its official plan policies after due consideration of available reserves and competing land uses. The ministry can provide technical assistance to municipalities in this task.

There are three major components to the achievement of the mineral aggregate target: mapping and assessment, planning and utilization of the resource and control and rehabilitation. Cornwall District has essentially completed the first component. Emphasis for the next five years should be directed to the second component with control and rehabilitation undertaken as an ongoing function through the administration of the *Pits and Quarries Control Act*.

Two quarries in the district have been stocked with trout; several gravel pits have been restored to productive agricultural, residential, recreation and forestry uses. This type of sequential land use demonstrates the integrated resource management approach. Rehabilitation should reflect the permitted uses established through the municipal planning process.

4. STRATEGY

- attempt to provide for future aggregate needs from within potential resource aggregate areas through review of and input to municipal and other agencies' plans and by consumer and producer education regarding the best utilization of available material;
- assign a higher emphasis to the identification and protection of aggregate sources in close proximity to markets and along highway corridors in order to reduce total costs;
- review and adjust if necessary, aggregate production targets at five year intervals to reflect local demand;
- undertake a public relations effort during the next five years in order to increase consumer awareness of pit and quarry operations, to encourage optimum utilization of the various grades of material available and to ensure that all operations are licensed;

CORNWALL DISTRICT

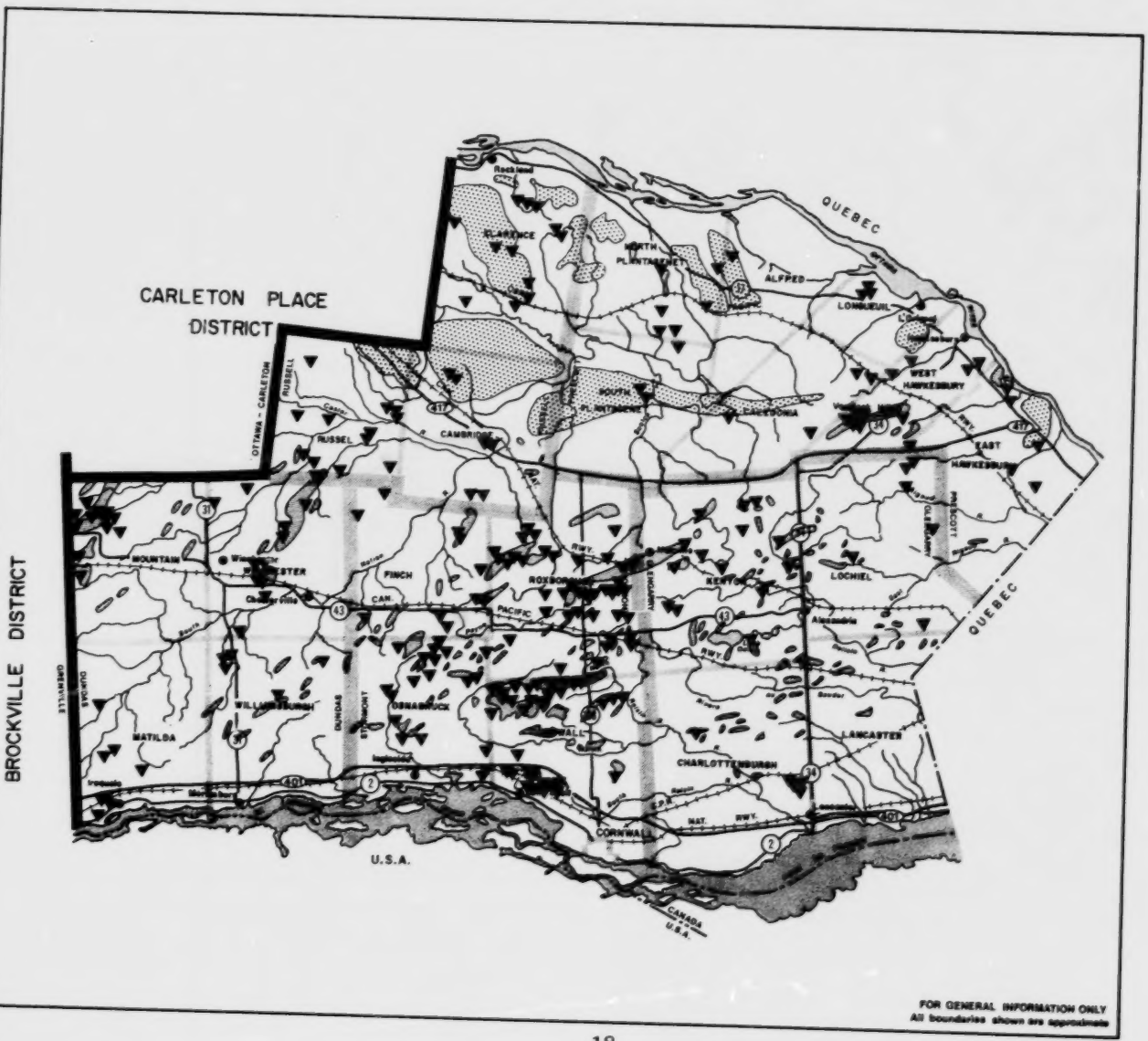
MINERAL AGGREGATE

LEGEND

- Mineral aggregate area (Class 1, 2 and 3 sand and gravel)
- Major granular fill deposit (Class 4)
- Licensed pit or quarry

Note:

1. The aggregate boundaries indicate potential resources not definite extraction sites. Actual production areas to be protected will be determined by each municipality through its official plan policies and by-laws.



MAP 3

- encourage the development of recreation facilities and the establishment of fish and wildlife habitat when planning and implementing the rehabilitation of pits and quarries;
- encourage innovative approaches to rehabilitation of pits and quarries which contribute to productive resource related use (e.g. agriculture, forestry, hydroponics, aquaculture and the provision of fish ponds);
- operate and rehabilitate Crown land pits and quarries according to the standards of the *Pits and Quarries Control Act*;
- encourage sequential uses on licenced properties (e.g. residential, campground) through the reservation of a land base in addition to the minimum setback requirements, particularly where a pit or quarry may be subject to inundation;
- promote efficient extraction of aggregate resources and minimize land use conflict through:
  - encouraging sequential land use and progressive rehabilitation of licenced pits and quarries,
  - encouraging the licencees to conduct their operations in a manner compatible with surrounding land uses and activities, and
  - recommending rehabilitation conditions as part of the approval for wayside pits and quarries; and
- encourage municipalities to consider the following time and cost saving measures in their review of pit and quarry applications:
  - review concurrently both zoning by-law amendments and corresponding pit or quarry licence applications, and
  - where appropriate, not to exceed restrictions imposed on pit and quarry operations required under the *Pits and Quarries Control Act*.

C: minerals and fossil fuels

1. OBJECTIVE

The objective for minerals and fossil fuels in southern Ontario is to provide for a strengthening of the contribution of these resources to provincial economic development and energy production.

2. TARGET

The target for mineral resources is to keep open as much Crown land and unalienated mining rights as possible for mineral exploration and development.

Specific mineral and fossil fuel production targets cannot be established because of difficulties in predicting market trends and assessing potential and because actual production is primarily a responsibility of the private sector.

3. DISCUSSION

The only mining activity in the Cornwall District other than for mineral aggregate is the production of peat and lime.

At present, there is a small commercial peat operation located in Mountain Township. Other opportunities for peat extraction exist within the district for horticultural use. No source of peat suitable for energy production under existing technology is known.

Peat bogs also provide habitat for wildlife. A local moose herd of some thirty animals is resident in the Alfred Bog. As development proposals for district peat bogs arise, habitat concerns must be defined for consideration by municipalities and other government agencies responsible for approvals.

Lime production is limited to an operation in Finch Township. This operation has sufficient resources to continue its present level of production over the entire planning period.

Where land is privately owned, mineral rights usually are held by the owner of the surface rights. No definitive statement, however, can be made which applies to the entire district. Potential developers should research the mineral rights on a site specific basis.

4. STRATEGY

- handle requests for information on mineral potential and mineral rights through the Eastern Region office in Kemptville; and
- encourage municipalities to allow extraction of minerals and fossil fuels which may be found within the district.

D: fisheries

1. OBJECTIVES

The objective for fisheries management in southern Ontario is to provide opportunities for recreation and economic benefits consistent with the maintenance of healthy fish communities.

More specific objectives are:
Sport Fishing
- to meet demand within the limits of a wisely managed and rehabilitated resource;

Commercial Fishing
- to maintain a viable industry;

Bait Fishing
- to maintain current production; and

Provincially Rare and Endangered Species
- to prevent the extinction of any native fish species.

2. TARGETS

The targets for fisheries in Cornwall District are:
Sport Fishing
- to provide 652,000 recreation opportunities by the year 2000;

Commercial Fishing
- to provide 68,000 kilograms (150,000 pounds) of fish annually by the year 2000;

Bait Fishing
- to provide 75,000 dozen fish annually from natural sources (this production is in addition to the commercial fishing target); and

Provincially Rare and Endangered Species
- to ensure no native fish species becomes extinct.

The targets for sport, commercial and bait fishing are based upon the best information presently available. There are inadequacies in estimates of present harvest and productivity. As this information is refined the targets will be re-evaluated.

3. DISCUSSION

a. General

Major factors affecting fisheries management are the quantity and quality of habitat available, angler and commercial harvest, water quality and contaminants.

The Ottawa and St. Lawrence River fisheries are major contributors to the total fisheries potential of the district. These two river systems have undergone major alteration due to the development of the St. Lawrence Seaway and the construction of major hydro-electric power facilities. These rivers, particularly the St. Lawrence, are still experiencing the effects of changes in flow regimes and alteration of spawning habitat. Contamination of certain fish species by various heavy metals and organic compounds also is evident in these systems. The attainment of district targets may be affected by these factors. As an example, there was a considerable drop in

total commercial harvest with the closure of the carp fishery in the mid-1970s due to mercury contamination in the St. Lawrence River.

Comprehensive resource management of the Ottawa and St. Lawrence Rivers requires the co-operation of adjacent districts, other agencies and other jurisdictions. The eel ladder at Moses-Saunders Power Dam is an excellent example of how two agencies (Ontario Hydro/MNR) have co-operated in a resource management effort. Jurisdiction, especially on the St. Lawrence system where the United States and the Province of Quebec share responsibility, is a key element in establishing production targets and management initiatives. Resource information exchange and co-operation with these adjacent jurisdictions and outside agencies will complement data collection and management efforts within the district. To further protect the fisheries resources, the ministry is working with American jurisdictions to ensure that balanced harvests of fish stocks are assured and management strategies are compatible.

Inland rivers are sensitive to the potential impact of major modification projects for flood reduction. In general, these streams are low gradient, moderately turbid, nutrient rich and have bottoms consisting of clay, silt, sand and gravel-rubble. They are warmwater rather than coldwater streams. Despite the fact that warmwater systems are generally more productive, turbidity, a reduction in habitat diversity, poor water quality and low flows limit their production in the Cornwall District.

Data on fisheries are incomplete. Attempts to test assigned targets have been seriously limited by the lack of comprehensive data on sport fishing activity in the district. Nonetheless, information on fish *harvest* is more readily available than fish *production*. Acceptable methods are lacking for estimating the fish productivity of streams which account for the bulk of the inland waters.

The water base and essential fisheries habitat required to meet targets will be identified through a district fisheries management plan currently being prepared. This plan, to be completed by the end of 1983, will provide direction and intent to fisheries management activities to the year 2000. Map 4 identifies where fishing is currently undertaken.

There is considerable natural diversity of species in district waters with most families represented except salmonids. Based on limited catch per unit effort (CUE) data and the number of anglers, the yellow perch fishery is the most important in the district, walleye and northern pike second, and bass third. Management emphasis for sport fish will continue to reflect this order.

Extensive stocking of bass, muskellunge and walleye have been discontinued due to the lack of demonstrable results. Efforts now are directed to habitat management and enhancement of native stocks.

The allocation of the allowable harvest of the fisheries resource among user groups will be based on an objective, careful examination of all relevant biological, social and economic factors to ensure that the optimum benefits accrue to the residents of Ontario. It is the responsibility of both anglers and commercial fishermen to participate in co-operative management and adhere to their catch limits, quotas and the regulations to protect the fish stocks and guarantee their perpetuation for the future.

An integral part of fisheries management is enforcement of legislation and regulations designed to protect the resource and its habitat. Weed harvesting and other alterations of fish habitat may have the effect of reducing essential nursery and spawning habitat. Also of concern are the potential impacts on habitat of oil spills, water level fluctuation and land use practices.

b. Sport Fishing

Most of the sport fishing in the district is undertaken by local residents. To achieve the target for sport fishing opportunities an estimated 228,000 kilograms (502,500 pounds) of fish must be available annually. An increase in the sport fish harvest may be possible only through the harvest of species not normally sought.

Coldwater fish production is low due to a lack of suitable habitat. There are only three short stretches of coldwater streams capable of supporting trout populations in the district plus two small put-and-take trout fisheries in rehabilitated quarries. Significant recreation opportunities are associated with the quarry fisheries. However, coldwater fish represent less than 1 percent of the potential supply of sport fishing opportunities.

The South Nation River supports a moderate stock of sport fish. The South Nation and Raisin Rivers also provide spawning and nursery areas for a portion of the Ottawa River and Lake St.

CORNWALL DISTRICT

FISHERIES

LEGEND

Sport Fisheries

Coldwater species

stream

Cool and warmwater species

lake

stream

Commercial Fisheries

Special area (spawning)

FOR GENERAL INFORMATION ONLY
All boundaries shown are approximate

MAP 4

Francis (St. Lawrence River) stocks of walleye, yellow perch, pike and brown bullhead. These are the best known of the cool and warmwater fisheries in the district and are expected to supply fish production to meet the remainder of the assigned target.

A possible unexploited yellow perch and bass sport fishery may exist in Lake St. Lawrence. This fishery also may provide the opportunities for benefits through tourism.

c. Commercial Fishing

Within the district, the scale of operation of the commercial fishery does not appear to have a significant effect on the overall fishery. Changes in the amount and type of gear, especially experimental and hoop nets, could affect level of catch and spatial conflict between users could result.

The current level of commercial production has been accepted as the commercial fishing target. The question of whether the resource is being over-exploited cannot be adequately addressed due to insufficient data.

No game fish, as defined by the *Ontario Fisheries Regulations*, are harvested commercially. The only potential conflict is bullhead which are both angled and commercially harvested.

Commercial fishing may conflict with sport fishing in the near future. At present, yellow perch that are angled can be sold. This may cause an exploitation problem in addition to conflict between commercial and sport fishermen.

d. Bait Fishing

The baitfish target is achievable although it reflects a harvest level higher than the current harvest. The present twenty-three baitfish licences were distributed on a township basis until 1981. Data regarding what water system the harvest comes from or where the potential production lies must be obtained to better manage this fishery.

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4. STRATEGY

- undertake a major data collection program during the next five years in order to identify important fisheries concerns. The program will be directed to firstly, the St. Lawrence River, secondly, the Ottawa River and thirdly, inland rivers and streams;
- prepare a district fisheries plan to identify current resource status and use, assess problems and issues facing fisheries management and recommend further resource management strategies;
- direct protection and rehabilitation of fish habitat including nursery and spawning areas firstly, to inland rivers and streams, and secondly, to the Ottawa and St. Lawrence Rivers;
- co-ordinate the fisheries management program with conservation authorities, outside agencies and with similar programs in New York State and the Province of Quebec, specifically by:
  - information exchange as opportunities arise,
  - the identification and rehabilitation of important muskellunge habitat,
  - assessment of the impact of contaminants on sport and commercial uses of the fisheries resource in co-operation with the Ministry of the Environment and Fisheries and Oceans Canada, and
  - input to the development of terms of reference and review of major proposals on watercourses;
- protect and, if necessary, rehabilitate spawning areas and other habitat critical to commercial and sport fish including wetlands;
- continue to operate the eel ladder at the Moses-Saunders Dam to expand the information base on eel migration;
- continue to establish the current average of five private fish ponds per year through extension service efforts;
- issue, as warranted, experimental commercial fishing permits on a non-recurring basis to investigate new or different technologies or to contribute to fisheries population information;
- orient public information efforts to habitat improvement, appreciation of fisheries resources and landowner-user relations;
- provide technical advice to fishing tournament organizers upon request as an interim strategy pending finalization of the provincial fishing tournament policy;
- increase the coldwater fishery production from 900 to 1,100 kilograms. Particular emphasis will be placed on the two quarry fisheries and the establishment of an additional quarry fishery by the private sector through extension services;
- increase sport fishing opportunities from Lake St. Lawrence over present levels by the year 2000 through recommendations in a district fisheries management plan;

- maintain the current level of commercial fishing total harvest until adequate population and fishing data are available to substantiate an expansion; and
- expand baitfish harvest on an areal basis rather than increasing production quotas from existing areas pending completion of baitfish productivity surveys. Productivity of baitfish streams, once known, will serve as the basis for establishing baitfish harvest areas and quotas.

E: wildlife

1. OBJECTIVES

The objective for wildlife management in southern Ontario is to provide opportunities for social and economic benefits from wildlife recreation and fur harvest consistent with the maintenance of healthy wildlife populations.

More specific objectives are:

Hunting

- to provide opportunities sufficient to maintain the present rate of participation and quality of hunting by residents; and
- to maintain the contribution to the economy of hunting by non-residents;

Trapping

- to sustain the maximum yield from wild furbearer populations while maintaining the present diversity of fur types; and

Other Uses

- to prevent additional species from becoming endangered or threatened;
- to improve the status of existing endangered or threatened species with the objective of removing them from the endangered species list; and
- to maintain populations of all wildlife species (both non-game and game) at levels sufficient to:
  - provide opportunities for recreational enjoyment, aesthetic appreciation, scientific investigation and educational uses,
  - provide benefits from tourism,
  - ensure environmental quality and ecosystem integrity, and
  - ensure the safety of the public.

2. TARGETS

The targets for wildlife in Cornwall District are:

Hunting

- to provide by the year 2000, 104,000 opportunities for hunting recreation per annum, including 3,000 opportunities for big game hunting, 46,000 opportunities for small game hunting and 55,000 opportunities for waterfowl hunting;

Trapping

- to manage populations of wild fur-bearers such that an average harvest of 18,000 pelts can be achieved by the year 2000 while maintaining the present species diversity; and

Other Uses

- to ensure no native wildlife species becomes extinct.

The targets for hunting and trapping are based upon the best information presently available. As this information is refined the targets will be re-evaluated.

A target for wildlife viewing has not been included due to the difficulty of measuring this activity and of assessing the influence of management actions. Viewing targets will be defined through ongoing policy development and will be incorporated into the *Land Use Guidelines* at an appropriate opportunity.

3. DISCUSSION

a. General

Historically, Cornwall District's wildlife habitat has changed as a result of intense logging and agricultural development. Drainage of wetlands,

the alteration of forest cover and land clearing for agriculture have affected habitat with varying results. For example, upland game species have probably benefited while waterfowl have declined.

The cumulative effect of changes in land use patterns has been the alteration and reduction of habitat, a redistribution of wildlife populations and access restrictions. The present general distribution of wildlife habitat is depicted on map 5.

Large areas of private land, although providing suitable habitat may be inaccessible to the general public. A lack of accessible land will tend to concentrate wildlife recreation activities in small areas which could create conflicts.

District wood production targets currently require all available production forest area. In that wildlife targets also require much of the same land base, consideration of wildlife habitat in forest management plans is required. Similarly, expansion of wildlife management on private land must be encouraged to meet district targets.

Wetlands represent key habitat for many forms of wildlife and are in short supply within the district. Efforts to protect and rehabilitate significant wetlands, particularly those on private land, are required. Many wetlands in the district are small in size and therefore could not be shown on map 5. Flooding of lowlands associated with the construction of the St. Lawrence Seaway and the Carillon Dam has partially offset loss of inland wetlands.

More specific and detailed information is needed to determine optimum sustainable yield and to undertake effective wildlife management.

An integral part of wildlife management is enforcement of legislation and regulations designed to protect the resource and its habitat.

b. Hunting

A local moose herd exists in the Alfred Bog and Larose Forest. The herd provides a unique wildlife resource to eastern Ontario for viewing and occasional hunting. The maintenance of a moose population and the protection of wildlife habitat in the Alfred Bog will be encouraged although the required management measures may be difficult to implement since the bog is in private ownership.

Deer populations are currently at a low level. Hunting, kills by dogs and habitat are all factors contributing to these low populations. Most deer habitat is on private land with little or no control over cutting or maintenance of vegetation. Although no problems occur with summer range, winter range is limited. With management effort the big game hunting target is achievable.

Small game populations within the district include ruffed grouse, snowshoe hare, Hungarian partridge and woodcock. Very little information is available on the population densities of these species.

The small game target equals current use or harvest and therefore is achievable. Problems associated with the resource include access for hunting and provision of habitat, particularly wetlands. Ministry programs could contribute to habitat improvement through forest regeneration and harvesting techniques complementary to wildlife.

Waterfowl habitat is concentrated along the St. Lawrence and Ottawa Rivers with smaller wetland pockets scattered throughout the inland areas. The district is located on the western edge of the Atlantic flyway and is a major staging area for a variety of duck species and Canada geese. Waterfowl hunting comprises more than 50 percent of all hunting in the district. The demand for public hunting in the area may require the re-evaluation of the Carillon Provincial Park master plan with respect to waterfowl hunting. The target is considered to be achievable.

c. Trapping

There are no registered traplines within the district. The present target is the current level of production and therefore is achievable. Approximately two-thirds of the people who hold licences actually take pelts. Until the implementation of a private land fur management program, the ministry has little control over harvest quotas and trapper densities.

Beaver create a nuisance problem in many areas in the district. Flooding caused by dam construction does create new wetlands but often inconveniences landowners and conflicts with forestry, agriculture and other uses.

d. Other Uses

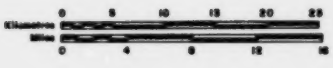
Wildlife-oriented activities such as viewing, photography and nature appreciation present new challenges within the district. The Upper

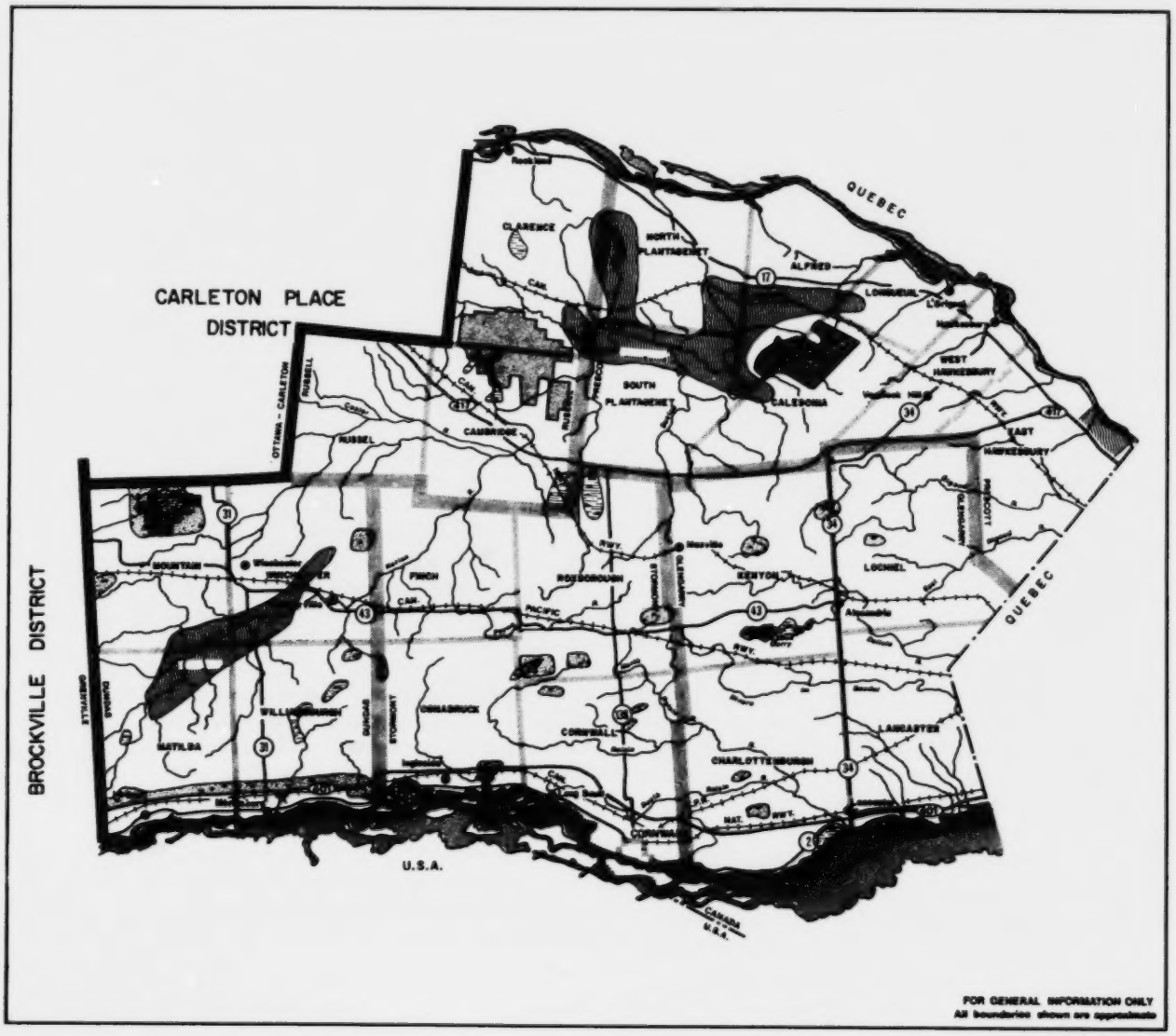
CORNWALL DISTRICT

WILDLIFE

LEGEND

- Deer winter concentration area
- Moose winter concentration area
- Waterfowl habitat
- Wetland
- Wildlife management area
- Special area (heronry, gull nesting)





MAP 5

Canada Migratory Bird Sanctuary alone provides over 30,000 user-days of recreation annually. It is expected that these wildlife-oriented activities will continue to increase in the future.

4. STRATEGY

- undertake a major data collection program during the next five years in order to identify important wildlife habitat areas;
- protect, conserve and manage all wildlife species (both non-game and game) on public and private lands, and ensure the perpetuation of diverse high quality habitats;
- identify endangered, threatened or rare species and significant populations of wildlife species (both non-game and game) and protect or manage them if the best available scientific, social and economic data indicate that such action is necessary to achieve the above objectives and targets;
- work co-operatively with government agencies at the federal, provincial and municipal levels, and with private landowners, developers and other members of the private sector to achieve the protection of all wildlife resources (both non-game and game);
- provide enforcement of the *Game and Fish Act* sufficient to maintain wildlife populations;
- prepare management plans for important wildlife habitats wherever possible;
- concentrate habitat management initiatives in the next five year period firstly, on Crown land, secondly, on other public land, and thirdly, on private land. Habitat management under current program policies and funding levels is more readily accomplished in this order;
- maintain ministry access and encourage the retention of municipal access to lands important to wildlife uses;
- identify and classify wetlands;
- encourage municipalities, through plan input and review, to designate significant wetlands as areas of environmental significance in official plans;
- co-operate with other agencies in the acquisition, protection and management of wetlands;
- acquire critical habitat areas where necessary and feasible;
- encourage, whenever possible, agreements for the management of critical habitat areas on private lands (e.g. transfer of development rights, lease);
- orient Crown land wildlife habitat management primarily to public education and demonstration;
- orient public information and education to habitat improvement on private land, stewardship, hunter safety, greater appreciation of wildlife resources and landowner-user relations;
- provide extension services which promote an understanding of the value of wildlife resources (both non-game and game) and non-consumptive uses and which enhance social benefits and tourism;
- increase extension services to provide expertise on habitat management to landowners, to encourage co-operators to provide biological and recreational information and to encourage the maintenance or development of access to private lands for wildlife recreation;
- encourage greater non-government participation in the identification and management of wildlife, particularly endangered, threatened or rare species;
- maintain or encourage maintenance of deer wintering areas critical to deer management. All ministry activities in these areas shall meet the needs of wintering deer including supplementary feeding, browse cutting, trail packing and predator control;
- manage vegetation adjacent to identified deer winter concentration areas so as to be compatible with habitat requirements for deer;
- increase overall big game hunting opportunities by a possible extended hunting season in Wildlife Management Unit 65 and by encouraging alternative hunting practices;
- promote habitat improvement for small game on private land through wildlife extension services and public information and education;
- manage public land for small game habitat and encourage increased access for wildlife recreation;
- continue to manage waterfowl populations, particularly at the Mountain Provincial Wildlife Area and at the Upper Canada Migratory Bird Sanctuary;
- continue to indirectly assess fur-bearer populations through fur stamping and sale data;
- establish trapping areas under the proposed new private land fur management program;
- use trapping area management and trapper education to promote the quantity of harvest, the quality of pelts produced, the number of trappers in a particular area and the performance of trappers;

- assist landowners in the control of nuisance beaver through maintenance of a list of active trappers by trapping area for referral purposes. Harvest will be encouraged when pelts are in prime condition; and
- take specific control action where wildlife destroys domestic animals or where wolves and coyotes harass deer in wintering areas.

F: provincial parks

1. OBJECTIVES

The objectives for the provincial parks system in southern Ontario are:

Protection

- to protect provincially significant elements of the natural and cultural landscape of Ontario;

Heritage Appreciation

- to provide opportunities for exploration and appreciation of the outdoor natural and cultural heritage of Ontario;

Recreation

- to provide provincial park outdoor recreation opportunities ranging from high intensity day use to low intensity wilderness experiences; and

Tourism

- to provide Ontario's residents and out-of-province visitors with opportunities to discover and experience the distinctive regions of the province.

2. TARGETS

The targets for the provincial parks system in Cornwall District are:

Protection

- Earth Science to protect provincially significant, representative and special earth science features in Cornwall District which contribute to the representation of the thirty-five geological environments of southern Ontario;
- Life Science to protect provincially significant life science features in Cornwall District which contribute to the representation of each vegetative site type in the twenty-six site districts in southern Ontario;
- Historical Resources to protect provincially significant landscape-related prehistorical and historical resources which contribute to representation of the fourteen themes of southern Ontario's history;

Heritage Appreciation

- to provide opportunities for exploration and appreciation of the outdoor natural and cultural heritage of Cornwall District; and

Recreation and Tourism

- to provide annually, by the year 2000, the following recreation opportunities for residents and visitors to provincial parks in Cornwall District:

  Day Use

  1,150,000 swimming opportunities

  434,500 picnicking opportunities

  Extended Use

  607,400 camping opportunities.

3. DISCUSSION

The objectives and targets stated above are normally achieved through establishing provincial parks of the six different classes (wilderness, nature reserve, historical, natural environment, waterway and recreation) and through zoning and managing these parks according to the appropriate planning and management policies.

Cornwall District has two existing parks, Carillon and South Nation, both of which are recreation class parks. The extent to which these parks and other features contribute to target achievement is discussed on the following pages.

a. Protection

For planning purposes the natural and cultural landscape of Ontario has been divided into three components — earth science, life science and

historical resources. A framework has been developed for each component which classifies the land-based natural and cultural resources of the province into geological environments, vegetation site types and historical themes. The objective is to eventually identify and protect a representative example of each of these units.

These earth and life science features and historical resources fit within the broader framework of areas of natural and scientific interest.

Areas of natural and scientific interest are areas of land and water containing natural landscapes or features which have been identified as having values related to protection, natural heritage appreciation, scientific study or education. They may vary in level of significance. The most significant areas may contribute to the achievement of the ministry's protection objective. These are listed in figures 2, 3 and 4 and are shown on map 6.

Where areas of natural and scientific interest occur on public lands managed by the ministry, it will ensure that the land uses and activities which occur provide for the protection of identified values.

On private lands, the ministry will, through co-operation with others, attempt to ensure that landowners are aware of significant features on their properties and seek the owner's co-operation in protecting such features. The identification of areas of natural and scientific interest on private land does not indicate an intent of the ministry to acquire this land, or to restrain or prevent any private use of land.

Areas of natural and scientific interest encourage the protection of additional features not regulated as provincial parks and provide a focus for both the public and private sectors to contribute to the protection of Ontario's natural heritage. A number of sites have been identified but further inventory is required.

The earth science framework divides Ontario's geological history into geological environments — periods of time during which a series of related geological processes gave rise to the diversity of rock types and landforms which make up the modern landscape of Ontario. Each of these environments is characterized by specific features and landforms which illustrate the processes which occurred during that period of geological time.

For the most part the earth science history of the Cornwall District is confined to the past 600 million years; there is only a small area of older Precambrian bedrock in the district. The earth science environments best represented by the district's resources are those of the Cambrian and Ordovician periods of the Paleozoic era and those of Pleistocene and Recent time periods (glacial and post-glacial landforms). The district has an excellent range of features which illustrate lacustrine/marine (Champlain Sea) and fluvial (Ottawa River) processes. It also contains the best examples of landslides in the province.

Carillon Provincial Park represents fluvial landforms rather well. Another two environments can be represented by two sites which have been identified. The Pointe Fortune Pit contains ancient glacial tills and sands which date back 40,000 years or more. This is the only site identified to date in eastern Ontario which contains such features. The Lemieux Landslide is representative of the numerous sensitive clay landslides which have occurred over the past several thousand years. Both sites include public and privately owned lands. Therefore their protection will require negotiation and agreement with public agencies and with the individuals who own the lands. Liaison with the South Nation River Conservation Authority may be necessary to provide protection of the Lemieux Landslide. Within the ministry program co-ordination will be necessary to explore alternatives for protecting these sites.

Figure 2 briefly summarizes the representation of major earth science environments for the district. Further study is required to evaluate a number of the sites listed.

FIGURE 2 AREAS OF NATURAL AND SCIENTIFIC INTEREST — EARTH SCIENCE REPRESENTATION IN CORNWALL DISTRICT

Geological Environment	Representation in Existing Parks	Other Sites
Paleozoic		
Late Cambrian-Early Ordovician Marine Nearshore	Carillon(1)	Rockland quarry Rockland Precambrian
Middle Ordovician Marine Carbonate Platform	South Nation(1)	Casselman unconformity
Late Ordovician Orogenic, Deltaic and Marine	—	Russell quarry
Pleistocene (sequence of environments is still not clearly defined for eastern Ontario)	Carillon	Pointe Fortune Pit(2) Casselman unconformity
Recent Recent environments are mostly represented by modern day landforms		
Tectonic Landforms	Carillon(1)	Generally evidenced by recent earthquake activity in the Ottawa - St. Lawrence lowland
Mass Wasted Landforms	Carillon(1)	Lemieux Landslide(2) Numerous additional sites
Glacial Landforms	Carillon(1)	Morrisburg Ditch Nairn Island and the Upper Canada Migratory Bird Sanctuary(3) Rockland quarry
Aeolian Landforms	—	Better representation in other districts
Marine/Lacustrine Landforms	—	Lemieux Landslide(2)
Fluvial Landforms	Carillon	Numerous sites
Karst Landforms	—	Plantagenet Caves

(1) poor to fair representation
(2) site of special significance
(3) St. Lawrence Parks Commission

Derived from ***Eastern Region Provincial Parks System Plan****, 1981.*

The life science framework divides Ontario into eight site regions, each of which is subdivided into a number of site districts, areas containing similar landform patterns. Cornwall District is entirely contained within site district 6-12, that part of eastern Ontario which was once flooded by the Champlain Sea and now has an abundance of clay and sand-based soils but very little exposed bedrock. Loam soils are reasonably well represented on some of the glacial tills which occur in the site district. Organic soils were once abundant on many of the flat-lying clay plains but are now infrequent due to extensive agricultural drainage.

There is a lack of large undisturbed natural areas of clay soils in the district. Future research will be concentrated on natural vegetation occurring on clay substrates.

Alfred Bog is one life science area about which enough is known to propose protection. The bog is representative of the once-extensive peatlands which occurred in eastern Ontario. It contains an excellent diversity of bog forest and shrub communities, several rare species of flora and fauna and a small resident moose population. Since most of Alfred Bog is privately owned, co-operation and agreements must be sought with the landowners.

Liaison with the Ministry of Agriculture and Food and with the South Nation River Conservation Authority will be necessary. Several

conservation organizations also have expressed interest in the preservation of the bog. Their co-operation and assistance will be sought where appropriate. Local governments will be involved in discussions regarding the bog's future.

Landslide scars, especially along the Lemieux-Casselman section of the South Nation River, may provide the opportunity to represent successional vegetation on clay soils in conjunction with protecting the landslide landforms.

Figure 3 indicates the extent of representation of natural vegetation on the soil materials in existing parks and the potential for further representation in the district. Further study is required.

FIGURE 3 AREAS OF NATURAL AND SCIENTIFIC INTEREST — LIFE SCIENCE REPRESENTATION IN CORNWALL DISTRICT

Site District and Soil Material	Representation in Existing Parks	Other Sites
Site District 6 - 12		
Rock	—	Can be better represented in other districts
Sand	—	Some potential
Loam	Carillon (1)	A number of till moraines with potential
Clay	—	Lemieux Landslide (1) District offers best potential in the Eastern Region
Organic	—	Alfred Bog (2) Other smaller sites

(1) poor to fair representation
(2) site of special significance

Derived from Eastern Region Provincial Parks files

A Topical Organization of Ontario History and a subsequent status report produced by the former Ministry of Culture and Recreation organized Ontario's history into themes, subthemes and segments. Due in large part to a lack of knowledge of the specific historical resources in Cornwall District this organization can be used only generally. Figure 4 shows the contribution the existing parks make to representing the eleven themes which are relevant to the district.

Many of the historical themes are or can be represented by the St. Lawrence Parks Commission. Other themes require more study.

FIGURE 4 AREAS OF NATURAL AND SCIENTIFIC INTEREST — HISTORICAL RESOURCES REPRESENTATION IN CORNWALL DISTRICT

Theme	Representation in Existing Parks	Other Sites
Environmental Frontiersmen	—	Further research required
Post-Contact Tribes and Bands	—	Further research required
Fur Trade	Carillon(1)	St. Lawrence Parks Commission(1)
Alienation of the Land	Carillon(1)	Land survey patterns throughout district
Early Settlement	Carillon(1)	Upper Canada Village(2)
Rural Life	Carillon(1)	Upper Canada Village(2)
Forest Industry	—	Theme better represented in other districts
Transportation and Integration of Economies and Communities	Carillon(1)	St. Lawrence Parks Commission(1)
Military	Carillon(1)	—
Recreation and Conservation	Carillon(1)	St. Lawrence Parks Commission

(1) poor or peripheral representation (i.e. may be nearby but not actually within the park)
(2) St. Lawrence Parks Commission

Derived from ***A Topical Organization of Ontario History*** *(1972) as revised 1978.*

b. Heritage Appreciation

Natural environment, wilderness and waterway provincial park classes or zones are the principal means of achieving the best representation of the diversity of natural and cultural landscapes across Ontario. Opportunities to explore and appreciate these landscapes then can be provided through a variety of self-use facilities and visitor services programs. No suitable land base has been identified having provincially significant resources for establishment of any of these classes of provincial park in the Cornwall District.

Amphitheatre programs, guided hikes and special children's events are presented in Carillon Provincial Park now and future program development will be outlined in a district visitor services plan.

The St. Lawrence Parks Commission provides opportunities for visitors to appreciate the significance of the St. Lawrence River both as a dominant natural feature and culturally as a provincially significant historical area.

Co-ordination with outside agencies will be essential. Complementary programs are recommended in such reports as the amenity study for the South Nation River Basin, the watershed plans of the conservation authorities within the district and the *Ontario Government Highway Rest Picnic Information Sites Task Force Report.*

c. Recreation and Tourism

The supply of swimming, picnicking and camping opportunities in the Cornwall area was determined as compared to the southern Ontario average per capita supply in 1976. The targets shown in figure 5 reflect the total number of opportunities needed by the year 2000 within a two hour driving range of the City of Cornwall for swimming and picnicking opportunities and within a three hour driving range of the city for camping opportunities in order to equal the southern Ontario per capita average.

To date, the amount of swimming beach, picnicking and camping facilities present in Carillon Provincial Park, South Nation Provincial Park and the parks operated by the St. Lawrence Parks Commission satisfies 59 percent of the district's swimming target, 195 percent of the picnicking target and 95 percent of the camping target. South Nation Provincial Park contributes only minimally to the picnicking target.

The additional swimming beach which may be required by the year 2000 is approximately 1,800 metres (6,000 feet) and 111 new campsites

FIGURE 5 RECREATION AND TOURISM TARGETS, EXISTING SUPPLY AND ADDITIONAL REQUIREMENTS — CORNWALL DISTRICT

	Day Use				Extended Use	
	Swimming opportunities	Metres of beach	Picknicking opportunities	Picnic tables	Camping opportunities	Campsites
Target (year 2000)	1,150,000	—	434,500	—	607,400	—
Existing Supply (1980)						
Carillon	92,437	305	172,048	475	106,251	417
South Nation	0	0	9,055	25	0	0
St. Lawrence Parks Commission[1]	590,030	2,246	668,273	1,845	472,654	1,855
Total	682,467	2,551	849,376	2,345	578,905	2,272
New opportunities required for year 2000 (rounded figures)	467,500	1,800	0	0	28,500	110
Available potential						
Carillon	0	0	(some, not quantified)		23,897	93
South Nation[2]	0	0	-9,055	-25	0	0
Total	0	0	-9,055	-25	23,897	93
Target Variance (rounded figures)	-467,500	-1,800	+405,800	+1,120	-4,600	-20

(1) The St. Lawrence Parks Commission facilities contribute to the provincial recreation supply figures
(2) If South Nation Provincial Park is removed from the system, existing park opportunities will be lost

Derived from ***Eastern Region Provincial Parks System Plan****, 1981.*

may have to be operated to meet the target completely. Cornwall District lacks natural sandy beach areas other than those already developed for use so it will have to investigate alternative swimming facilities if the target is to be met. The St. Lawrence Parks Commission owns considerable waterfront and could develop additional man-made beaches if the need arises. Most of the camping deficit could be offset by completion of a planned campground loop in Carillon Provincial Park. Current demand does not warrant expansion at this time. Demand must, however, be monitored over the next twenty years to determine the accuracy of the predictions which resulted in the given target. No new provincial park facilities are proposed at the present time.

Co-operation, exchange of information and co-ordination with the St. Lawrence Parks Commission and other agencies or local groups providing recreation services will be an ongoing function.

Emphasis will be on reviewing plans of other agencies to ensure co-ordinated delivery of recreation services and avoidance of any detrimental developments to the present recreation infrastructure and other sites identified as special areas.

Map 6 shows the location of existing provincial parks and includes as areas of natural and scientific interest those earth science, life science and historical resources presently identified.

CORNWALL DISTRICT

PROVINCIAL PARKS AND RECREATION

LEGEND

Existing provincial park

Class

r recreation

Other

SLPC St. Lawrence Parks Commission

Area of Natural and Scientific Interest

- Earth science
- Life science
- Historical/ cultural

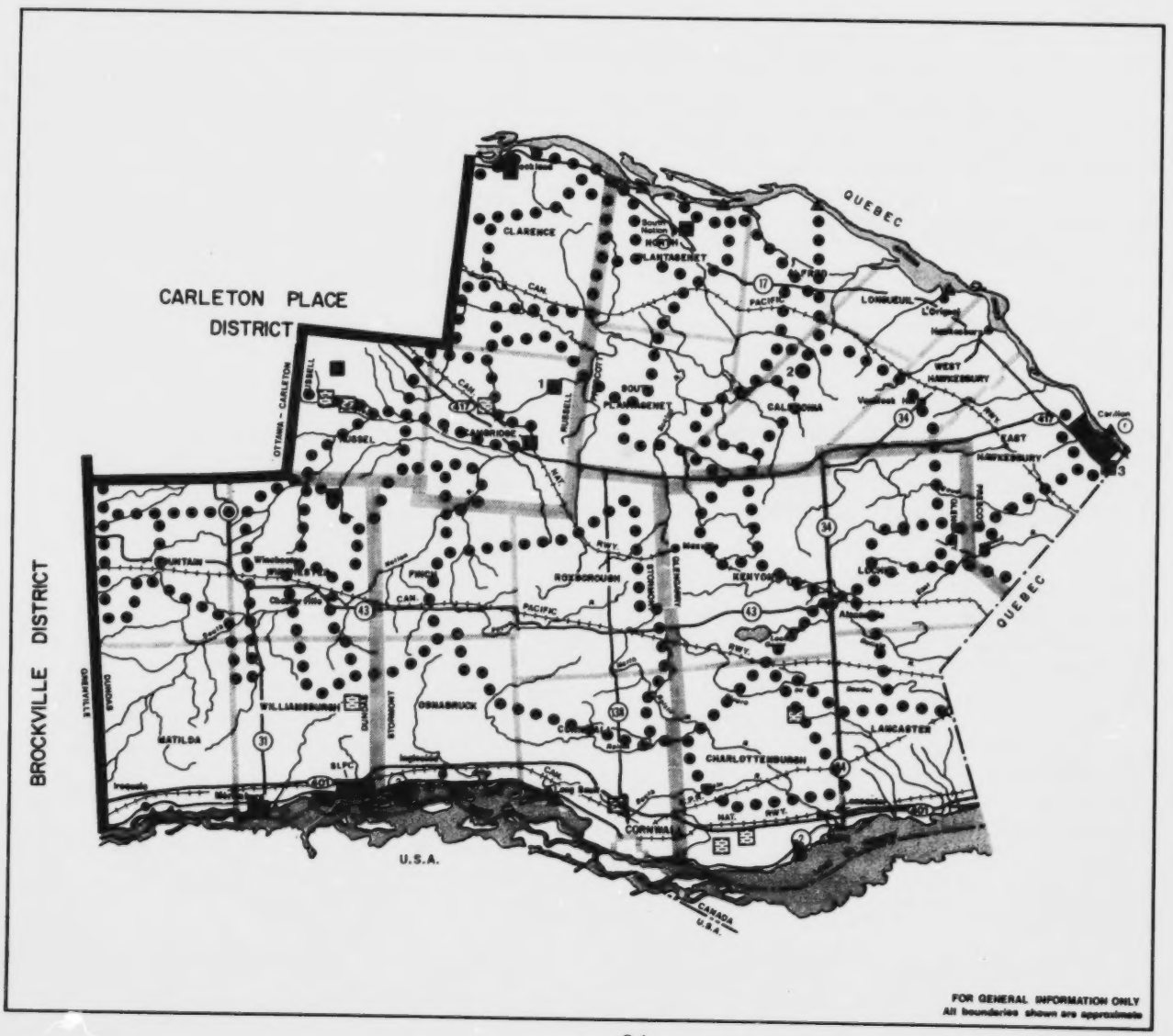
Site of Special Significance

1 Lemieux Landslide
2 Alfred Bog
3 Pointe Fortune Pit

Other recreation areas

Major trail

Access point



FOR GENERAL INFORMATION ONLY
All boundaries shown are approximate

MAP 6

4. STRATEGY

a. Protection

- continue an inventory of areas of natural and scientific interest to identify adequate representation of earth science, life science and historical resources;
- endeavour to conserve and protect significant sites through co-ordinated ministry programs and special arrangements with willing owners;
- consult with the Ministry of Citizenship and Culture on matters of historical and archaeological research and planning; and
- continue to evaluate specific sites in the district for comparison and rating across the province to further the most complete and highest quality representation of the natural and cultural landscape as possible.

b. Heritage Appreciation

- implement the visitor services plan for Carillon Provincial Park. The emphasis will be on self-use facilities for visitors which will interpret the historical and geological themes as represented in the park and in the local area; and
- co-ordinate the promotion of provincial park opportunities in the district with the St. Lawrence Parks Commission through mutual exchange and distribution of information for the public and other initiatives.

c. Recreation and Tourism

- use the surplus picnicking opportunities within the Cornwall District to assist Carleton Place District meet its targets, if necessary;
- consider the transfer of South Nation Provincial Park to another agency or to private entrepreneurs as it contributes minimally to provincial parks target achievement;
- continue to monitor user demand and preferences with surveys to improve park visitor services and to direct optimal recreation use of district land and water resources;
- adjust, as necessary, the recreation service now provided; and
- emphasize Carillon Provincial Park as a recreation focus in any waterfront strategy which may be developed for the Ottawa River.

G: general recreation

1. OBJECTIVES

The ministry's recreation management efforts are directed primarily to hunting, fishing and provincial parks. There are a number of other recreation related activities of the ministry for which no objectives have been developed.

Tentative objectives for general recreation in southern Ontario are:

- to provide and encourage the provision of a wide variety of recreation opportunities ranging from day use to back-country experiences;
- to identify, select and protect provincially significant natural and cultural resources; and
- to provide an economic contribution through tourism.

2. TARGETS

No targets have been assigned in Cornwall District.

3. DISCUSSION

The St. Lawrence River, the Ottawa River and inland waters in Cornwall District are important recreation and tourism resources which contribute to the local economy. It is part of the ministry's objective to provide on Crown land and encourage on private land, a continuous contribution to the economy from tourism and its related industries.

A lack of major topographic relief features in the inland portions of the district, low water

quality, and competition from nearby recreation areas such as the Adirondacks and the Laurentians has limited major recreational development to the corridors represented by the St. Lawrence River and the Ottawa River. Map 6 depicts recreation resources within the Cornwall District.

At the present time, the ministry is involved in the supply of day use hiking, cross-country skiing, snowmobiling and picnicking opportunities on Crown land and in seven agreement forests in the Cornwall District. These are presented in figure 6.

FIGURE 6 EXISTING 1980 SUPPLY OF GENERAL RECREATION OPPORTUNITIES — CORNWALL DISTRICT

Activity	Crown Land		Agreement Forests	
	Opportunities	Facilities	Opportunities	Facilities
Hiking	1,400	8 km trails (5 mi.)	2,340	5 km trails (3 mi.)
Cross-Country Skiing	1,600	3 km trails (2 mi.)	89,000	170 km trails (100 mi.)
Snowmobiling	23,800	65 km trails (40 mi.)	59,500	160 km trails (96 mi.)
Picnicking	14,220	60 tables	7,350	31 tables

Derived from ***Ontario Recreation Supply Inventory****, 1980.*

The ministry directly contributes to the achievement of general recreation objectives by providing trails and other recreation facilities on agreement forest lands, wildlife management areas and other Crown lands such as Carillon Provincial Park.

Numerous groups and agencies also contribute to the achievement of these objectives by developing trails and other recreational facilities, and protecting significant natural and cultural resources.

The ministry will assist groups and agencies through the granting of permission to develop recreational trails on appropriate public lands. The ministry also will maintain contact with local trail clubs, and will provide advice on the development and management of facilities by these and other suppliers of general recreation.

The ministry will attempt to maintain the present level of service on Crown land and continue to co-operate in the provision of recreation opportunities by the private sector whenever possible.

Over 760,000 additional snowmobile opportunities are available on 2,050 kilometres (1,270 miles) of private trails throughout the district.

The preponderance of private land in the district indicates the need to investigate means by which landowners might be encouraged to allow public use of their lands for selected recreational activities. Also, the ministry could promote the expansion and quality of recreation facilities on other lands. Other agencies which can contribute to general recreation include the conservation authorities and the federal government.

The ministry often identifies or is made aware of by other agencies or individuals, sites of local or regional natural and cultural significance. While these sites may not be critical to specific ministry programs it is recognized that they may be important to the quality of life in the community and may be highly valued by local citizens and organizations. The Cornwall District maintains file information on these special areas to which it refers during the planning and development of ministry programs which might adversely affect the significant features of such sites. This information is available upon request to landowners and other concerned individuals and groups and to agencies such as Ontario Hydro, pipeline companies, local governments and consulting firms. Such individuals and groups are encouraged to conserve and protect these features. The identification and documentation of these sites is an ongoing process.

4. STRATEGY

- permit recreational use of Crown land with minimum restrictions considering other resource uses and the environment;

- include provisions for outdoor recreation and education in the resource management plans of Larose Forest and Mountain Provincial Wildlife Area;
- promote the expansion and quality of private campgrounds and other private sector initiatives which complement provincial parks objectives. This will include the support of recreation-oriented projects of other government agencies and municipalities;
- provide upon request, input and review of recreation-oriented proposals of public agencies and the private sector in order to complement provincial parks objectives. In the short-term, emphasis will be given to plans for private campgrounds, marinas and trail facilities; and
- continue to identify and document locally and regionally significant natural and cultural sites and to encourage the conservation and protection of these sites through ministry activities and through making information about them available to landowners, municipal governments and other concerned individuals and groups.

H: land administration

1. OBJECTIVE

The objective for land administration in southern Ontario is to facilitate the orderly development and conservation of Ontario's land and water resources.

2. TARGETS

Specific land administration targets have not been developed for the Cornwall District. To a very great extent, this administrative activity operates to serve other Ministry of Natural Resources programs and the needs of other agencies.

3. DISCUSSION

The ministry has a custodianship responsibility for Crown land. This is carried out by authorizing appropriate use of Crown land through licences, leases and permits, by asserting the Crown's proprietary interest concerning illegal occupation of Crown land, by maintaining up-to-date records of land grants and by clarifying land claims based upon evidence of long-time occupancy and those by native people.

Where access on Crown land is required for natural resource development and use, roads will be provided and maintained consistent with approved land use guidelines, resource management plans, work plans and approved operating guidelines.

The orderly development of lands and waters will be assisted by a geographical referencing system which will include standards, Ontario Basic Maps and surveys.

4. STRATEGY

- maintain the Crown's proprietary interest in land;
- conclude administrative procedures to confirm the interprovincial boundary between Ontario and Quebec in the St. Lawrence River;
- administer and manage public lands and waters to contribute to the achievement of ministry and other government objectives. This may require from time to time, acquisition, interim property management, disposition and regulation of unauthorized occupations;
- dispose of public land only upon a recommendation in a resource management plan or resource management statement. Consideration will be given to the availability of suitable private land, the potential competition with the sale of private land, the poten-

tial impact on adjacent use and the policies and designations of land use in municipal official plans; and

- develop and maintain access roads on Crown land essential to resource development and use.

The general resource area boundaries of the Cornwall District are broadly drawn to reflect both present ministry activities and the capability of the land base to support particular uses.

Each area is described in terms of present use and development, significant features and known problems and issues related to ministry interests. Strategies for each resource area are stated, which should be read in conjunction with the general and specific policies applying across the district.

The resource areas establish the relative importance of ministry programs in different parts of the district and the strategies provide the direction for resource management actions.

All general resource areas, lettered for identification purposes only, are shown on the map in the pocket inside the back cover.

1. AREA A

a. Description

This area consists of lands and waters situated south of Highway 401. Present uses include recreational, residential and urban development, agriculture and quarries.

The area is situated south of a major transportation corridor (Quebec-Windsor Axis) and is adjacent to New York State and the Province of Quebec.

A major concentration of government owned land in the district resulted from the development of the St. Lawrence Seaway.

Facilities operated by the St. Lawrence Parks Commission in the Cornwall District include Upper Canada Village, ten campgrounds and general recreation facilities such as cross-country ski trails, snowmobile trails and a maple sugar demonstration. The Upper Canada Migratory Bird Sanctuary provides viewing.

Controlled hunting opportunities are provided in the Lake St. Lawrence Wildlife Management Agreement Area.

Major fish spawning and nursery habitat is present in Lake St. Lawrence, Lake St. Francis and tributary streams. By area, 36 percent of district wetlands are present in this area. Ministry studies have shown that these wetlands are more significant than inland wetlands and are under the greatest pressure for development.

Considerable sport fishing for perch, walleye, pike, bullhead and smallmouth bass is undertaken in the St. Lawrence River. This area receives greater angler pressure than the Ottawa River.

There is a major deer concentration area between Ingleside and the western district boundary. Major waterfowl habitat and staging areas also are found.

Problems and issues include the unconfirmed boundary between the provinces of Quebec and Ontario in Lake St. Francis, unresolved land and other claims by the St. Regis Band and significant numbers of unauthorized occupations of Crown land under water east of Cornwall. The co-ordination of fish and wildlife activities on an interprovincial and international basis, and the co-ordination of other shore zone management activities among various government agencies also have been identified as management issues.

b. General Intent

Major emphasis will be given to fish and wildlife strategies. All specfic policies, however, may apply within the area provided they do not unduly conflict with fish and wildlife concerns and the official plan policies of local municipalities.

c. Specific Strategies

- undertake a major data collection program along the St. Lawrence River during the

next five years in order to identify important fisheries concerns. This is the first area within the district for such study;
- prepare a waterfront strategy for the St. Lawrence River;
- attempt to increase sport fish harvest opportunities from Lake St. Lawrence through recommendations to be presented under the district fisheries management plan;
- direct protection and rehabilitation of fish and wildlife habitat, including wetlands and nursery and spawning habitat through input and review of dredge and fill applications, other agency plans and public education;
- in conjunction with Ontario Hydro, operate the eel ladder at Moses-Saunders Power Dam as a means to expand the information base on eel migration;
- maintain the resident goose flock at the Upper Canada Migratory Bird Sanctuary at 2,000 birds;
- prepare a preliminary study for the Cornwall Recreation Area to direct integrated resource management of fish and wildlife, timber and outdoor recreation activities;
- investigate agreements for forest management on lands held by other government agencies;
- alleviate the moderate shortage of camping opportunities to the year 2000 through the use of St. Lawrence Parks Commission facilities, possibly on Dickinson Island where there are 232 unused campsites;
- alleviate the projected shortage of swimming beach supply, if necessary, through one or more of the following actions:
  - request the St. Lawrence Parks Commission to re-open the facilities presently available, though not in operation, on Dickinson Island,
  - market the surplus swimming beach opportunities in neighbouring Brockville to absorb excess demand, and
  - investigate the provision of swimming opportunities equivalent to the projected shortage through the development of artificial swimming areas or new beaches in provincial parks within the Cornwall District;
- encourage co-operative study and information exchange with New York State and the Province of Quebec to improve shore zone management of the St. Lawrence River; and
- provide for outdoor recreation and education opportunities in the resource management plan for the Hoople Creek Provincial Wildlife Area.

2. AREA B

a. Description

This area occupies the south-central portion of the district lying inland from the St. Lawrence River. Present use and development is agriculture, aggregate supply and private land forestry.

A major concentration of *Woodlands Improvement Act* agreements, active pits and quarries and private woodlots are found in this area. Major concentrations of small game populations and the predominant range for deer in the district also are present.

A large number of wetlands are located in this area. Nursery habitat for Lake St. Francis and Lake St. Lawrence are located in tributary streams.

Problems and issues include the alteration of water courses and wetlands by water management projects for agriculture and flood reduction, and the need for a high level of co-operation from private landowners to achieve the forestry objectives.

Demand for general recreation opportunities by residents of Cornwall and other centres may result in increased use of Crown properties within this area.

b. General Intent

Ministry activities within this area will be undertaken firstly, to conserve high quality aggregate reserves, secondly, to provide sources of wood fibre, thirdly, to provide opportunities for general recreation and fourthly, to increase the level of management of wildlife habitat on private land. All specific policies may apply within the area provided they do not unduly conflict with official plan policies of local municipalities and the major ministry programs.

c. Specific Strategies
- emphasize the strategies for Mineral Aggregate;
- promote rehabilitation of pits and quarries for recreation, fish and wildlife habitat and forestry;
- promote the establishment of a rehabilitated quarry as a demonstration area to exhibit productive, progressive and innovative rehabilitation;

- promote an increase in the production and harvest of wood fibre including fuelwood through agreements with private landowners, industry and government agencies and through extension service to owners of private woodlots;
- provide improved access and opportunities for general recreation and education on Crown compartments and, where possible, agreement forests;
- investigate the feasibility of planting headwater recharge areas of the South Nation River watershed with the South Nation River Conservation Authority to achieve water management, timber management and general recreation objectives. Other headwater recharge areas may be considered upon completion of this investigation (see also Area C);
- promote wildlife habitat improvement and forest management through agreements under the *Game and Fish Act* and extension efforts; and
- protect and rehabilitate, if possible, important fish habitat.

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3. AREA C

a. Description

This area consists of two parts, the central core of the district and major portions of Charlottenburgh and Lancaster Townships. Present use and development is predominantly agriculture.

Significant concentrations of high quality aggregate are found in Mountain and Winchester Townships. Also located in this area is the Mountain Provincial Wildlife Area and the Morewood Bog.

A major waterfowl habitat and staging area is located in the upper reaches of the South Nation River in the Brinston area. Nursery habitat for the Lake St. Francis fishery and, to a lesser extent, the Lake St. Lawrence fishery are found in tributary streams. Significant Hungarian partridge populations also are present.

Problems and issues include extensive flooding along the South Nation River and its tributaries, landslides due to the presence of unstable marine clays, the alteration of water courses and wetlands by water management projects for agriculture and flood reduction and water quality for fisheries.

b. General Intent

No predominant program emphasis has been identified for this area. All specific policies may apply within the area provided they do not unduly conflict with the official plan policies of local municipalities. The ministry will provide assistance to municipalities and advice to private landowners regarding optimum use of resources.

c. Specific Strategies

- identify areas for consideration in district timber management activities on both public and private lands where reforestation or cutting practices may improve deer and other wildlife habitat;
- implement the following specific recommendations of the *Mountain Provincial Wildlife Area Resource Management Plan* as priority undertakings:
  - attempt a 50 percent expansion of the deer herd through habitat improvement,
  - provide opportunities for outdoor recreation and education,
  - manage waterfowl populations,
  - investigate the feasibility of recommending adjacent lands for acquisition for dog field trails, and
  - investigate the feasibility of acquiring or entering into agreements with private landowners to protect an adjacent deer winter concentration area;
- investigate the feasibility of planting headwater recharge areas of the South Nation River watershed with the South Nation River Conservation Authority to achieve water management, timber management and general recreation objectives. Other headwater recharge areas may be considered upon completion of this investigation (see also Area B); and
- protect and rehabilitate, if possible, important fish habitat.

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4. AREA D

a. Description

This area is in two parts which occupy the north-central portion of the district. Present use and development is predominantly forestry with areas of intensive agriculture. General recreation in the form of hunting, snowmobiling, picnicking and cross-country skiing is available.

The area is underlain by extensive pockets of sand. A large number of wetlands are found due to high water table conditions.

The Larose Forest, the second largest agreement forest in Ontario, and the Alfred Bog, a peat bog exhibiting several faunal and floral features, are located within the area. Some wildlife species which are rare in the district (e.g. moose) are found in this area.

Spring Brook, one of the few coldwater streams in the district, and the 28 hectare (70 acre) Lemieux Landslide are found here.

Problems and issues include the alteration of water levels to enhance wood fibre production, agriculture or water management. This alteration may impair the value of wetlands for wildlife and fisheries habitat. Habitat alteration for market gardening, peat extraction and other initiatives on private land, particularly the Alfred Bog, may affect wildlife populations and flora unique to this part of Ontario.

Beaver populations and the associated creation of wetland areas through dam construction present management problems for wood fibre production, forest access and private uses in adjacent areas.

Weekend hunting, hiking and picnicking in the Larose Forest present a potential for user conflicts.

b. General Intent

Major emphasis will be given to wood production strategies with special recognition of wildlife habitat and general recreation activities such as snowmobiling and hiking. All specific policies may apply provided they do not unduly conflict with the major program emphasis and the official plan policies of local municipalities.

c. Specific Strategies

- manage the moose population in the Larose Forest to a level of thirty to fifty animals on an interim basis pending availability of additional data on optimum population levels;
- conduct controlled moose hunts from time to time as a management prescription to maintain healthy populations;
- direct activities within the Larose Forest to the year 2000 according to the *Larose Forest Management Plan*. Opportunities for outdoor recreation and education will continue to be provided;
- provide opportunities for general recreation and education such as trails in accord with timber cutting plans, new tree plantings and wildlife habitat maintenance;
- seek the protection of the earth and life science features in the Lemieux Landslide and in the Alfred Bog through negotiation with the present landowners;
- control beaver on lands managed by the ministry to protect important forestry and access concerns; and
- prepare a recreational operating strategy for Larose Forest. This strategy will complement the ten year timber operating plan and provide for hunting and other recreational uses.

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5. AREA E

a. Description

This area consists of the northern portion of the district and the Ottawa River corridor. Present uses include agriculture, forestry, and residential, urban and recreational development.

Carillon Provincial Park and South Nation Provincial Park are located in the area.

The Ottawa River is a major district fishery for bullhead, carp and sturgeon. It is a minor sport fishery for yellow perch, walleye, sauger and pike. Coldwater streams are located in the western section.

A major waterfowl habitat and staging area (spring only) exists between Ettyville and Fournier. At other times of the year it is actively farmed.

Unstable marine clays contribute to landslides, earth slippage and subsidence along the Ottawa River and inland streams. The protection of life, the prevention of property damage and the avoidance of social disruption due to natural hazards is of major concern.

Other problems and issues relate to the need to co-ordinate shore zone management activities among various government agencies. The co-ordination of fish and wildlife activities on an interprovincial basis, improved opportunity for general recreation and access on the Ottawa River are examples.

b. General Intent

Major emphasis will be given to fish and wildlife strategies and general recreation strategies. All specific policies may apply within the area provided they do not unduly conflict with the major program emphasis and the official plan policies of local municipalities.

c. Specific Strategies

- undertake a major data collection program along the Ottawa River to identify important fisheries concerns. This is the second area within the district for such study;
- undertake a study to determine the feasibility of establishing a marina and an equestrian centre in Carillon Provincial Park;
- encourage increased use of Carillon Provincial Park through marketing efforts in Ontario, Quebec and northern New York State;
- implement the visitor services plan for Carillon Provincial Park. Emphasis will be on self-use facilities for visitors which will interpret the historical and geological themes within the park and the local area;
- re-evaluate waterfowl hunting within Carillon Provincial Park in the context of the *Carillon Provincial Park Master Plan* and public demand for hunting in the area;
- provide interpretation within Carillon Provincial Park of the Pointe Fortune hill earth science feature;
- continue to provide opportunities for cross-country skiing and snowmobiling on trails within Carillon Provincial Park;
- establish a forest resource management demonstration for new forest technology, fibre production and habitat improvement throughout Carillon Provincial Park;
- undertake a feasibility study of development on Parker Island in the Ottawa River for boat-in day use recreation;
- consider the transfer of South Nation Provincial Park to another agency or to private entrepreneurs;
- encourage initiatives such as the expansion and improvement in quality of private campgrounds which complement ministry recreation objectives. Particular emphasis for this program during the first five years of the *Land Use Guidelines* will be directed to investigating opportunities for improved access and recreation firstly, along the Ottawa River, secondly, on inland rivers and thirdly, in support of recreation-oriented initiatives of other government agencies;
- identify areas of sensitive marine clays for the purpose of promoting their recognition in the official plans of municipalities to prevent loss of life and property damage;
- prepare a wildlife management plan for Carillon Provincial Park; and
- protect and rehabilitate, if possible, important fish habitat in inland streams.

Application of the *Cornwall District Land Use Guidelines* will be accomplished through regular programs and activities of the ministry such as:

- input to, and review of, municipal official plans, zoning by-laws, plans of subdivision, consent applications and zoning orders under the *Planning Act*;
- review of specific development proposals by other proponents on both Crown and private land;
- use of specific conditions in permits, licences, leases and easements issued under the authority of provincial legislation (e.g. *Public Lands Act, Lakes and Rivers Improvement Act, Crown Timber Act*);
- liaison and co-operation with other government ministries and agencies such as conservation authorities; and
- education and extension programs with private landowners and municipalities.

All resource management plans must have due regard for the intent of the *Land Use Guidelines*. Audits of district and regional programs will be done to ensure the intent of the document is being met.

This document has no legal status. The control of land use on private land in municipalities is exercised by municipalities or the Minister of Municipal Affairs and Housing under the authority of the *Planning Act*.

The ministry recognizes that private landowners, other government agencies, municipalities, conservation authorities and interest groups are key partners in any effort to achieve effective and integrated resource management. The Ministry of Natural Resources will continue to work with these groups, especially with municipalities, through the ministry's plan input and review program to ensure that resource values are considered in local planning documents.

Private land in organized municipalities constitues 95 percent of the land base in Cornwall District. For these lands it is essential to achieve integration between ministry intentions for land use and the plans of the municipalities.

The *Cornwall District Land Use Guidelines* may serve as a source of information for ministry involvement in municipal planning. The ministry will consult with municipal officials and private landowners where the *Land Use Guidelines* indicates the ministry wishes to influence particular land uses on private land in organized municipalities. At this time the needs of other land users will be taken into consideration.

There will be occasions when the ministry feels that certain land uses or proposed developments on private land, while in conformity with municipal planning documents, will have a negative impact on ministry programs or interests. In such situations the ministry will attempt to resolve the situation through discussions with the proponent, the municipality and the Ministry of Municipal Affairs and Housing.

In municipalities containing Crown land there may be situations where municipal planning documents do not permit land uses on Crown land indicated as preferred in the *Land Use Guidelines*. Where this happens, and it appears that a possible land use conflict might arise, the ministry will consider taking further action under the procedures provided for by the *Planning Act*.

Conservation authorities are independent corporate agencies set up jointly, under the *Conservation Authorities Act*, by the local municipalities and the Province of Ontario to develop and implement water related land management programs. The *Act* is administered on behalf of the Province of Ontario by the Ministry of Natural Resources.

Conservation authorities are presently completing watershed plans that will outline the long-term direction of their programs. The primary program of conservation authorities in flood and erosion control complements the ministry's

programs. Other conservation authority programs, particularly those in forestry, fish, wildlife and recreation supplement the efforts of the ministry. Both agencies are making every effort to reduce duplication and overlap in their planning and ensure that the delivery of resource management programs achieves the greatest possible benefits to the people of Ontario.

In the Cornwall District there is a close working relationship with the Raisin Region and South Nation River Conservation Authorities. Contacts occur at the staff level and between senior ministry personnel in the district and executive members of authorities. Conservation authorities are often better able than the ministry to influence some types of land use and natural resource decisions in the municipalities and the private sector.

Co-operation with other agencies in the Cornwall District involves the St. Lawrence Parks Commission, Ontario Hydro, the St. Lawrence Seaway Authority, the Canadian Wildlife Service, Ducks Unlimited (Canada), the Nature Conservancy of Canada, and the provincial ministries of Agriculture and Food, Citizenship and Culture, Energy, Environment, Municipal Affairs and Housing, Tourism and Recreation, and Transportation and Communications. Contacts with other agencies may occur as the need arises.

The need for a co-operative working relationship is particularly important with respect to the program activities of the provincial ministries of Agriculture and Food and Environment.

The ministry recognizes the importance of agriculture. On private land, the ministry normally will not encourage or support activities or land uses which result in a long-term loss of the amount of land in agricultural production. The ministry will encourage forestry, recreation and other compatible uses on high capability land presently not in agricultural production. Generally, on public land the ministry will maintain high capability agricultural land, or other sites as identified by the Ministry of Agriculture and Food, in uses which do not preclude the long-term use of these lands for agriculture should agricultural use become necessary or desirable.

The Ministry of Natural Resources will work closely with the Ministry of the Environment in meeting the requirements of the *Environmental Assessment Act* and in monitoring impacts on the environment related to natural resources. The two ministries have jointly developed guidelines related to water quality and fisheries issues. The Ministry of Natural Resources has responsibility for identifying the fisheries values of a waterbody with respect to meeting Ontario's fisheries mandate. This identification is based on the *Land Use Guidelines* and, as developed, local fisheries management plans. The Ministry of the Environment is responsible for determining existing water quality and predicting the effects of proposed development on water quality. The latter information is used by the two ministries to assess potential effects on fisheries values.

APPENDIX

A: highlights of public consultation

Public consultation in the preparation of the *Cornwall District Land Use Guidelines* began with the distribution of a *Background Information* report in the summer of 1980 followed by open houses in Cornwall, Winchester and Hawkesbury in February 1981 which attracted 150 to 200 people. At that time, the public was asked to comment on the accuracy of the ministry's information and to provide any additional knowledge they had of the planning area and raise any problems or issues they felt should be addressed during the process.

The district public participation effort was directed towards those groups and individuals with an interest or concern for the long-term use of natural resources such as government agencies, municipalities, conservation authorities, special interest groups, local primary industries, the tourism sector and private individuals. An information tabloid on the ministry's land use planning activities received extensive distribution in an effort to encourage participation.

In July 1982 a draft *Cornwall District Land Use Strategy* was released and in August additional open houses were held to explain the direction proposed and to invite public comment. About 133 people attended open houses held in Cornwall, Winchester and Bourget. A total of 750 copies (English and French) of the draft document have been distributed. In addition to receiving many verbal and approximately 100 written comments as a result of open houses, the ministry held follow-up meetings with municipalities and interest groups at their request. A drop-in centre held at Carillon Provincial Park was attended by over 600 people.

Based on the analysis and evaluation of all the public input received, this document was prepared. The Minister personally reviewed the district summary and analysis of public comment and discussed the proposed *Land Use Guidelines* with the District Manager. In addition, the Minister held a series of public forums across the province to hear firsthand the views of interested groups and individuals.

Table 1 indicates the kind and number of contacts which have been made during the public consultation process. Table 2 summarizes the type and number of responses by category of respondents. The information in these tables is complete to November 1, 1982.

Copies of all comments received are available for viewing in the Cornwall District office, in the ministry's main office public reading room and in the Legislative Library at Queen's Park, Toronto.

TABLE 1 SUMMARY OF CONTACTS

Background Information	3
Total Background Open House Attendance	150 - 200
Draft Strategy Open Houses	3 + 1 Drop-in Centre
Total Draft Strategy Open House Attendance	133 + over 600 at Drop-in Centre in Carillon Provincial Park
Comment Sheets Distributed	1,000 +
Draft Strategies Distributed	550 English 200 French
Phone Calls Received	50 +
Speeches Made	5
Meetings with Municipalities	20 +
Meetings with Conservation Authorities	3
Meetings with Other Agencies	nil
Meetings with Interest Groups	nil
Interviews with Media	10 + 1 Talk Show (CFLG-FM)
Displays at Local Shopping Centres	3
Displays at Trade Fairs	1
Participation in Planning Conference	1
Other	Posters advertising Open Houses were placed in municipal and government offices, libraries and shopping malls. Cable television and local radio stations received pre-recorded tapes and news releases.

TABLE 2 SUMMARY OF RESPONSES

Response Documentation / Category of Respondent	Individual	Conservation Authority	Government Agency	M.P.P.	Municipality	Interest Group	Industry	Category Unknown	Total All Categories
Background Open House Comment Sheet	BACKGROUND OPEN HOUSES HELD FEBRUARY 1981 (Responses not differentiated by category)								
Background Open House Record of Conversation									
Draft Strategy Open House Comment Sheet	9		1						10
Draft Strategy Open House Record of Conversation	22		11	1	14	11	2	4	65
Mailed Coment Sheet	1								1
Letter/Brief	3		5		3	8	1		20
Record of Conversation					1				1
Total	35	0	17	1	18	19	3	4	97

Candidate Park
An area designated in Ministry of Natural Resources land use guidelines which may be given official status as a park at some time in the future.

Capability
The natural ability of an area to provide continuous opportunity for benefits under an assumed level of management.

Capacity
The upper limit to which an area of land or water may be used or developed without an undesirable change taking place in the environment. Also called carrying capacity.

Crown Land
All land (including land under water) held by the province, both land which has never been granted or sold and land which has been reacquired.

Geological Environment
A discrete period of time characterized by distinctive geological and geomorphological processes, climatic conditions and plant and animal life or its absence which is represented by identifiable features on or below the earth's surface.

Goal
A general purpose to which the ministry aspires.

Historical Theme
A common activity or procedure involving a substantial portion of the contemporary population within a defined time span and geographic area.

Integrated Resource Management
The co-ordination of resource management programs to ensure that conflicts are minimized and that management which would benefit several programs is encouraged. Integrated management encourages multiple use but recognizes that in some circumstances management of areas for a single purpose may be necessary.

Land Use Guidelines
A document which displays direction concerning the use of land and water in a defined area. It identifies where and how the ministry intends to achieve its objectives in a specific district through the use of Crown land and through influencing the use of private land.

Land Use Planning
A process which culminates in a direction regarding the use of land.

Management
The judicious use of means to achieve ends. Management may have various levels of intensity.

Multiple Use
A resource management or planning concept applied to very large areas to indicate that all basic uses are accommodated. Typically, two or more uses may occur on the same general area at the same time or in sequence.

Objective
A quantifiable end result to be achieved.

Occasion
A measure of recreational use describing the number of times a recreation resource or facility is used by individuals in a given time period. An occasion is considered not to exceed one day in duration.

Operational Plan
A part of a resource management plan stating the extent (includes human and financial resources) of all work of any nature to be carried out during one or more years of the management period.

Opportunity
A measure of recreation supply describing the number of times a recreation resource or facility can be used (occasions of use) in a given time period. An opportunity is considered not to be greater than one day.

Policy
A decision concerning the objectives to be achieved and the means of achieving them.

Program
An activity undertaken by the ministry to provide a service or manage a particular resource.

Public Land
Any land owned or administered by a public body or agency. It includes federal, provincial and municipally-owned lands and lands held by agencies such as parks commissions and conservation authorities.

Resource
Any commodity that meets a need.

Resource Management
The control and co-ordination of the use of resources to achieve specific ends. Commonly applied in particular to natural resources.

Resource Management Plan
A plan by which the policies, objectives and targets usually of an individual program (except in the case of an integrated resource management plan) are implemented for a specific resource.

Sequential Use
Where one use is followed by another in planned sequence.

Site District
A fairly large subdivision of a site region set apart from other areas because of a characteristic pattern of landform features.

Site Region
An area of land within which the response of vegetation to the features of landforms follows a consistent pattern.

Site Type
A lower order subdivision of a site region based on the interaction of microclimate, substrate and moisture regime. A characteristic association of plant species will develop on an individual site type within a specific site region. The number of site types also varies from site region to site region.

Strategy
Planned actions or measures to achieve a desired end.

Target
A quantified end to be achieved or completed by a specific date.

Work Plan
A plan prepared annually which defines what management activities are to be undertaken for that year.

CORNWALL DISTRICT

1983

LEGEND

E — Area reference letter

Area boundary

GENERAL RESOURCE AREAS

NWALL DISTRICT

RAL RESOURCE AREAS

LEGEND

Area reference letter

Area boundary

CARLETON PLACE DISTRICT

BROCKVILLE DISTRICT

Rockland

QUEBEC

OTTAWA

RIVER

E

D

C

B

ALFRED

PACIFIC

LONGUEUIL

L'Orignal

Hawkesbury

WEST HAWKESBURY

EAST HAWKESBU

Vankleek Hill

ALEDONIA

SOUTH PLANTAGENET

CAMBRIDGE

RUSSEL

OTTAWA – CARLETON

RUSSELL

PRESCOTT

GLENGARRY

Rigaud

Castor

Nation

South

Payne

North

Raisin

Rivers

au

Beaudet

Delisle

Loch Garry

Winchester

WINCHESTER

MOUNTAIN

Chesterville

FINCH

ROXBOROUGH

Maxville

KENYON

CHIEL

Alexandria

WILLIAMSBURGH

OSNABRUCK

CORNWAL

LANCASTER

DUNDAS

STORMONT

GRENVILLE

CAN.

RWY.

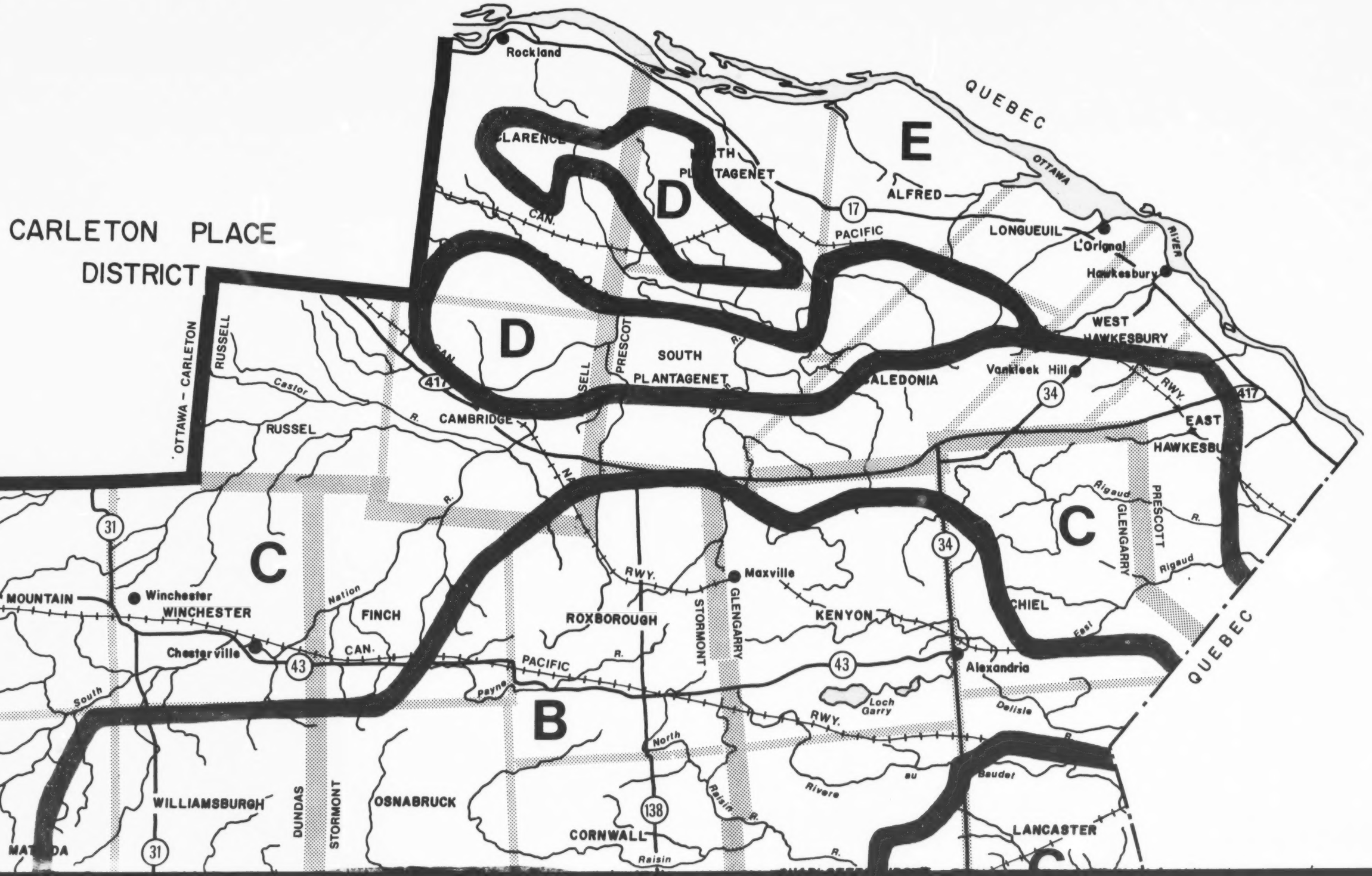
31

34

43

138

417


CARLETON PLACE
DISTRICT
Rockland
QUEBEC
OTTAWA
E
D
D
C
B
C
C
CLARENCE
PLANTAGENET
ALFRED
17
CAN.
PACIFIC
LONGUEUIL
L'Orignal
Hawkesbury
RIVER
WEST
HAWKESBURY
Vankleek Hill
34
RWY.
EAST
HAWKESBU
417
RUSSELL
PRESCOTT
SOUTH
PLANTAGENET
CALEDONIA
OTTAWA - CARLETON
Castor
R.
CAMBRIDGE
RUSSEL
Rigaud
GLENGARRY
PRESCOTT
R.
Rigaud
31
Winchester
WINCHESTER
MOUNTAIN
Nation
FINCH
Chesterville
43
CAN.
PACIFIC
R.
Payne
South
ROXBOROUGH
RWY.
STORMONT
GLENGARRY
Maxville
KENYON
CHIEL
East
Alexandria
QUEBEC
Loch
Garry
Delisle
R.
Baudet
DUNDAS
WILLIAMSBURGH
DUNDAS
STORMONT
OSNABRUCK
North
Raisin
R.
138
CORNWALL
Raisin
R.
LANCASTER
31

BROCKVILLE DISTRICT

OTTAWA – CARLETON

RUSSELL

PRESCOTT

GRENVILLE

DUNDAS

STORMONT

GLENGARRY

D

C

B

C

C

SOUTH PLANTAGENET

CALEDONIA

WEST HAWKESBURY

EAST HAWKESBURY

Vankleek Hill

CAMBRIDGE

RUSSEL

Castor R.

Rigaud R.

Rigaud

Prescott R.

CHIEL

East

MOUNTAIN

Winchester

WINCHESTER

Nation R.

FINCH

CAN.

Chesterville

PACIFIC

Payne

South

ROXBOROUGH

RWY.

Maxville

KENYON

Alexandria

Loch Garry

Delisle R.

Beaudet

Rivere

WILLIAMSBURGH

MATILDA

OSNABRUCK

CORNWALL

Raisin R.

CHARLOTTENBURGH

LANCASTER

Long Sault

Raisin R.

C.P.R.

NAT

Morrisburg

ST. LAWRENCE RIVER

U.S.A.

CANADA

U.S.A.

LAKE ST. FRANCIS

QUEBEC

31

43

34

417

401

2

138

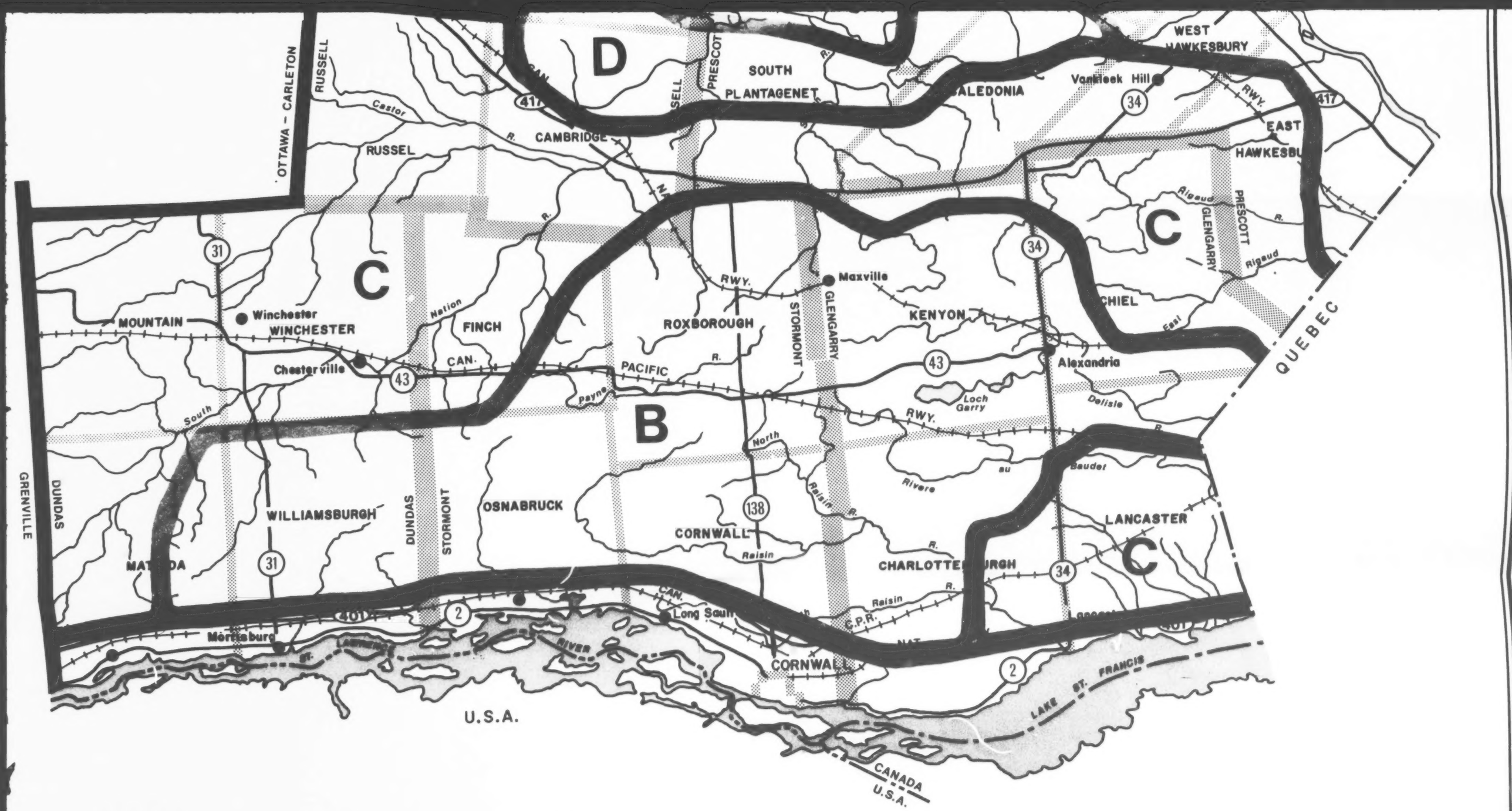
Ontario

Kilometres 0 5 10 15 20 25

Miles 0 4 8 12 16

FOR GENERAL INFOR

All boundaries shown a



Kilometres 0 5 10 15 20 25

Miles 0 4 8 12 16

FOR GENERAL INFORMATION ONLY
All boundaries shown are approximate

POOR

QUALITY

ORIGINAL